AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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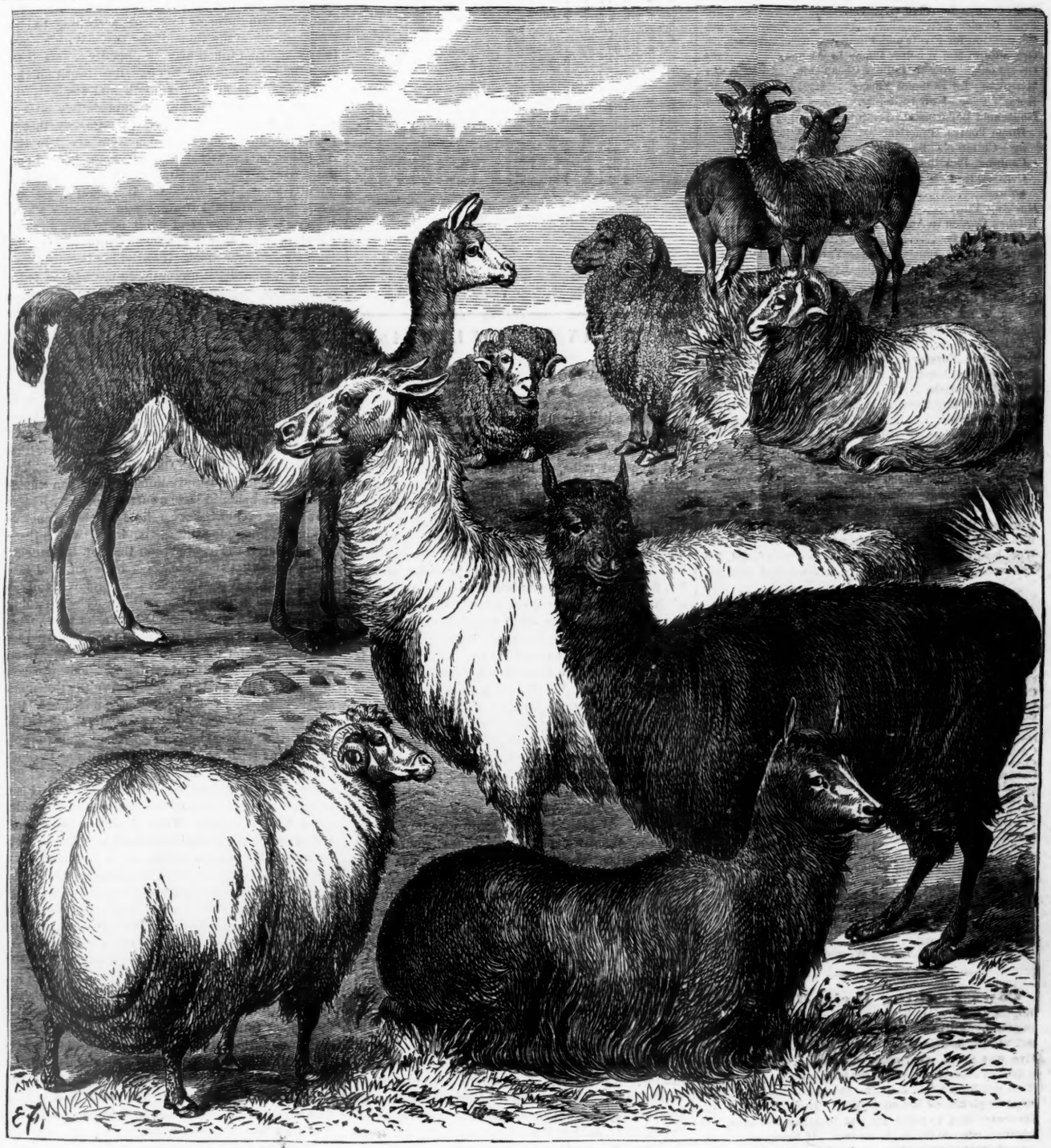


HUANACO. MERINO RAMS. MOUFFLONS. CASHMERE GOAT.
FAT-TAILED SHEEP. LLAMA. ALPACAS.

A GROUP OF WOOL-BEARING ANIMALS.—*Drawn and Engraved for the American Agriculturist.*—(*See page* 289.)

Contents for August, 1871.

Bee Notes for August. 288
Boat—How to Build One.... 6 *Illustrations*..297
Boys and Girls' Columns—Insects as Musicians—Farmer or Doctor, Which?—Aunt Sue's Puzzle Box—Tempting Good Nature—Boys and Girls' Letters. 4 *Illustrations*—307-308
Brooms for Stable and Barnyard....3 *Illustrations*..298
Cabbage Maggot and Caterpillar.... 303
Cattle—Brittany Cow.... ....*Illustrated*..293, 299
Don't Sell the Best Calves.... 298
Drainage in Scotland.... 299
Egyptian Beet.... 302
Farm Work for August.... 282
Fish—The Alewife.... ....*Illustrated*..293
Flower Garden and Lawn in August.... 284
Fraxinella.... ....*Illustrated*..304
Fruit Garden in August.... 283
Fruit Ladder.... ....*Illustrated*..296
Fumigation for Plants and Poultry....*Illustrated*..296
Greenhouse and Window Plants in August.... 284
Greenhouse—How to Build a Cheap One. ...5 *Illus*..301
Harrowing for Different Effects.... 298
Horse's Shoe—How to Replace....4 *Illustrations*..296
Household Department—Improved Spinning Wheel—Home Topics—Practical Studies—Mistaken Economy—Children's Shoulder-straps—Froebel's Gifts—Canning, Pickling, and Using Fruit—Eating Green Corn—Questions about Canning—Heading off Mosquitoes....*Illustrated*..305, 306
Husking Pin....*Illustrated*..299
Kitchen Garden in August.... 283
Market Reports.... 284
Notes from the Pines—Grapes—Varieties—Mildew—Insects—Training—Tendrils—Evergreens—Pruning—Peas—Spiræa calloss—Hardy Cactuses....302, 303
Odometer or Measuring Wheel.... ..*Illustrated*. 297
Ogden Farm Papers, No. 20—Setting Milk—Farm Stock—Dallas—Fancy Prices for Thorough-bred Animals....290, 291
Orchard and Nursery in August....283
Pasturing Meadows....289
Pig Question again....299
Poultry—An Egg Farm....2 *Illustrations*..291, 292
Rustic Bridges....*Illustrated*..301
Salt-Marsh Mud as a Fertilizer....296
Tim Bunker on Paying Crops....289
Tuberose—A New One.... 303
Walks and Talks on the Farm, No. 92—Apple Orchard—Red-root—Sheep and Swine—Rotation—Weeds—Shorthorns—Footrot in Sheep.... ....294, 295
Watering the Herd. . ...*Illustrated*..300
Will it Pay to Cook Corn for Hogs?....298
Wool-bearing Animals....*Illustrated*..281, 289
Yellow Asphodel.... ....*Illustrated*..303, 304

INDEX TO "BASKET," OR SHORTER ARTICLES.

Alfalfa....287
Breaking Steers....285
Buckwheat, Thrashing....287
Building a Greenhouse....285
Butter Making. 287
Care of Harness....288
Carrots and Onions....287
Corn.... . 285
Corn-Husking Machine..287
Cows Holding up Milk....285
Criticisms....285
Crops in Va....284
Curing Corn Fodder....288
Currant Worms....287
Cutting Clons....286
Docking Lambs.... 287
Farmers' Clubs.... ..285
Farm Gates....287
Feeding Fodder Corn....287
Fleas....286
Foul in the Foot....287
Four Lambs....286
Garget and Bitter Cream..288
Glycerine....287
Grass, to Get.... 287
Green-fly on Quince....287
Green Land Marl....287
Hard-milking Cow....286
Harvesting Peanuts.. ...287
Hide-bound Calf....285
Horse not Leading....285
Humbugs, Sundry....285
Lactometer....287
Lime on Stubble....287
Lime vs. Ashes....287
Milk Weed....287
N. Y. Agr'l Ed. Excursion285
Odd Fellows....285
Orchard, Neglected....286
Oxford, Pa., Fair....287
Plantation Cows.... 288
Plaster 287
Pollen....287
Poppy Culture.. 285
Putty and Paint....288
Raising Pigs by Hand...287
Sandy Uplands in Ind....288
Scab in Sheep....286
Scolymus.. 286
Seeds, Keeping....287
Skim-Milk and Meal....286
S. C. Phosphate....288
Special Notice.... ..285
Sundry Humbugs....285
Strawberry Questions....286
Thomas' Harrow.. 287
Tomato Wine....286
Wash from Roads....285
Wheat and Chess....285
Worn-out Stock....284

Cows Leaking their Milk.—C. E. Rogers, Orleans Co., Vt., wants a remedy for cows leaking milk. Milk such cows three times a day. On page 203, vol. 28, *American Agriculturist*, the following preventive was given, viz., apply collodion (gun cotton dissolved in ether) to the end of the teat, covering the orifice. This will form a thin skin over the end of the teat which must be picked off before milking. It will also tend, by its contraction, to press the teat together, and close the aperture whence the milk escapes. If there are cracks or sore spots on the teats, wash them clean with water before applying the collodion; it is a very healing application, though slightly painful at first.

Calendar for August.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon rises.	N. Y. City, Ct. Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	4 52	7 20	8 19	4 56	7 16	8 15	5 0	7 11	8 11
2	W	4 53	7 18	8 52	4 57	7 14	8 50	5 1	7 10	8 47
3	T	4 54	7 17	9 21	4 58	7 13	9 19	5 2	7 9	9 18
4	F	4 55	7 16	9 46	4 59	7 12	9 46	5 3	7 8	9 45
5	S	4 56	7 15	10 10	5 0	7 11	10 11	5 4	7 7	10 12
6	S	4 57	7 14	10 35	5 1	7 10	10 37	5 5	7 6	10 38
7	M	4 58	7 12	11 10	5 2	7 9	11 3	5 6	7 5	11 6
8	T	4 59	7 11	11 30	5 3	7 7	11 33	5 6	7 4	11 37
9	W	5 0	7 10	morn	5 4	7 6	morn	5 7	7 2	morn
10	T	5 1	7 8	0 2	5 5	7 5	0 6	5 8	7 1	0 11
11	F	5 2	7 7	0 40	5 6	7 4	0 45	5 9	7 0	0 50
12	S	5 3	7 6	1 21	5 7	7 2	1 28	5 10	6 59	1 34
13	S	5 4	7 4	2 13	5 8	7 1	2 17	5 11	6 58	2 23
14	M	5 5	7 3	3 9	5 9	7 0	3 14	5 12	6 56	3 20
15	T	5 6	7 1	4 7	5 10	6 58	4 12	5 13	6 54	4 18
16	W	5 7	7 0	sets	5 11	6 57	sets	5 14	6 53	sets
17	T	5 8	6 58	8 10	5 12	6 55	8 8	5 15	6 52	8 6
18	F	5 10	6 57	8 36	5 13	6 54	8 35	5 16	6 51	8 34
19	S	5 11	6 55	9 3	5 14	6 53	9 3	5 17	6 50	9 3
20	S	5 12	6 54	9 29	5 15	6 51	9 30	5 17	6 48	9 32
21	M	5 13	6 52	9 58	5 16	6 50	10 1	5 18	6 47	10 3
22	T	5 14	6 51	10 29	5 17	6 48	10 33	5 19	6 45	10 37
23	W	5 15	6 49	11 7	5 17	6 47	11 12	5 20	6 44	11 17
24	T	5 16	6 48	11 54	5 18	6 45	12 0	5 21	6 43	morn
25	F	5 17	6 46	morn	5 19	6 44	morn	5 22	6 41	0 5
26	S	5 18	6 44	0 50	5 20	6 42	0 55	5 23	6 40	1 1
27	S	5 19	6 43	1 54	5 21	6 41	2 0	5 24	6 38	2 4
28	M	5 20	6 41	3 6	5 22	6 39	3 11	5 25	6 37	3 16
29	T	5 21	6 39	rises	5 23	6 37	rises	5 26	6 35	rises
30	W	5 22	6 38	7 18	5 24	6 36	7 16	5 26	6 34	7 14
31	T	5 23	6 36	7 45	5 25	6 34	7 44	5 27	6 32	7 44

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart..	7	11 40 ev.	11 28 ev.	11 16 ev.	11 4 ev.	10 34 ev.
New Moon	16	2 18 m.	2 6 m.	1 54 m	1 42 m.	1 12 m.
1st Quart.	23	6 51 m.	6 39 m.	6 27 m.	6 15 m.	5 45 m.
Full.....	30	1 37 m.	1 25 m.	1 13 m.	1 1 m.	0 31 m.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1871.

We have had an unusually hurrying time on the farm the past month. The hay crop was late, and the wheat crop early. We have also had heavy and frequent rains, which, though much needed, and of great value to pastures, corn, potatoes, oats, and roots, have not only retarded the haymaking operations, but caused a great growth of weeds in the corn and potato fields, and rendered necessary an extra amount of hoeing and cultivating. Seldom has work been more pressing, and he is a fortunate farmer who has been able to secure his hay and grain in good condition, and at the same time keep his growing crops clean.

To those who have been able to do this, August is a month of comparative leisure. Or, rather, it is a month of freedom from pressing work. We have time to breathe. We can stop to think. But the battle is not over. A farmer's work is never done. Next year the same things must be done again, and now is the time to prepare for them. If we have had good crops, this should encourage us to renewed exertions; if we have had poor ones, it should spur us up to more vigorous efforts to remove the cause. As a rule, we know what the cause is. And many of us know also how to remove it. What we need is promptness, energy, and forethought. The weak point in the management of not a few farmers, is the neglect of little things. Tools, implements, and machines are out of order. Gates sag, the hinges are off, the lower board is broken, and the fastening is gone. Fences are out of repair. Boards and shingles are loose upon the barn. The apple-trees are full of suckers. The fence corners are a mass of weeds, rubbish, stones, and brush. Every year the owner of such a farm has made up his mind to improve, but he does not know when and where to commence. We can tell him: There can not be a better time than the month of August, 1871, and the first thing to do is to reform *himself*. Agriculture is, or ought to be, a grand educator. It should teach promptness, order, system, energy, self-reliance, patience, a sense of responsibility, faith in Providence, and a joyous hopefulness. As a rule, a farmer has no one to blame but himself. He may complain of the weather, but it is no worse for him than for others, no worse this year than it was in years past, or will be in years to come. He may complain of "want of time," but he will soon learn that he has *all the time there is*. No one robs him of it. It is a good thing for a man to feel his responsibility. We all want to blame some one other than ourselves.

It is no use quarreling with circumstances, or the "constitution of things." We must meet our difficulties like men; and patience, perseverance, and intelligent industry will enable us to triumph over them.

Hints about Work.

Thatching Hay Stacks.—We are no advocates of the English system of stacking and thatching hay. It is far better and cheaper to put it in a barn. But where this can not be done, the stacks should be thatched with more or less care, according to circumstances and the value of the hay. With a carefully made roof much may be done to enable it to shed the rain by *raking* the hay downward on the roof, so as to make it lie smooth and straight. It is better to do this during or immediately after a rain. It is better, however, to regularly thatch the stack, directions for which were given in the *Agriculturist* for October, 1870, page 374. Long grass, very useful for thatching hay stacks, may frequently be cut on low land. It should be put on while green, and laid straight, and carefully raked. If straw is used, the great point is to have it thoroughly wet, so that it can be made to lie straight on the roof of the stack. If thatching is considered too much trouble, at any rate do not neglect to tie some poles together with hay-bands, and place them astraddle the roof to prevent the wind from tearing up the hay.

Thrashing Grain.—A farmer had better hire an extra man than to work at any steady job connected with thrashing. He can save more by seeing that every thing is done properly, than by doing, as is frequently the case, the hardest part of the labor himself. A thrashing machine is a "regular horse killer." The thrashers are inclined to save their own horses at the expense of those of the farmer. The outside horse has to walk much faster than the inside one, and should have a correspondingly longer part of the evener. Bore a hole in the evener of the inside horse, for the clevis, from two to three inches nearer the center than that of the outside horse. See that the track is firm, even, and free from stones. If possible, let it be on level land, as a free horse is inclined to pull harder when going up hill. When stopping for lunch, let the horses have some water, and if a pint of meal is stirred up in a pail of water for each horse, it will enable them to do extra work without feeling it. The granary, of course, will be put in order before the thrashers arrive. If there is a cellar underneath the granary or the thrashing floor, it is better to be on the safe side and put an extra prop or two underneath to support the floor. Fodder will be scarce the coming winter, and all the straw *and chaff* should be carefully saved. It is a common mistake to make the straw stack too wide, and not high enough. This gives too flat a roof, and much of the straw is damaged by the rain. Better make the bottom of the stack too small than too large. The great point in stacking straw is to keep the middle full and tread it down solid. For the first ten or twelve feet the better plan is to put a horse or an ox on the stack, and drive him about to tread down the straw. With a horse that is used to it, there is no trouble in getting him off the stack, especially if a part of one side is made a little slanting, and a few forkfuls of straw are placed at the bottom for him to alight on. When the middle is kept full and well trodden, the outsides will settle more than the middle, and thus make a better roof. The hole where the man stands to take the straw from the carrier, should, after the stack is completed, be carefully filled with a few bundles of straw, so placed and held in by thatch-pegs that they will keep out water.

Weeds in Corn and Potatoes must be destroyed. Better knock down a few hills of corn in cultivating, than suffer the land to be covered with weeds.

A shallow-running cultivator with broad shares will not injure the corn by cutting off the roots. Go through the corn after the cultivator and pull or hoe all the weeds from the hills of corn. It is hardly safe to use a cultivator on potatoes so late in the season. Pull the weeds out by hand.

Weeds in Pastures and Fence Corners should not on any account be suffered to go to seed. Let them be mowed at once.

Stubble Land, especially after barley, is often full of weeds; a mowing machine may be used with advantage to cut them. Also, in pastures where thistles and other weeds or rough grass and rushes are abundant, a mowing machine affords an easy method of checking or destroying them.

Milch Cows are apt to fall off rapidly in their milk this month, and that dairyman is fortunate, or, more correctly speaking, prudent and enterprising, who has a good supply of corn fodder. There is little profit in keeping cows, unless they have all the food they can eat and digest. The trouble with corn fodder is that it is too bulky. The cows are capable of digesting more of it than their stomachs will hold. They need, if the grass is of poor quality, a little corn-meal in addition to the fodder.

Horses suffer greatly from flies this month, and should be provided with nets or light cotton covers. Washing them with water containing a little crude carbolic acid is a temporary relief.

Sheep frequently suffer greatly this month for want of water. If there is no water in their pasture lot, let them be put at night in a lot where there is water, or else be driven to water night and morning; allow them plenty of time to drink. If the weather is wet, and the grass long and succulent, it is a good plan to mow a portion of it occasionally. The sheep will eat and thrive on the dried grass. It is a true saying that "sheep like roast meat better than boiled." Lambs, if not done already, should now be weaned. Let them have the best of pasture after weaning, and place the ewes on poor pasture until dry. Examine the bags for a few days, and, if necessary, draw out the milk. When dry, and if early lambs are desired next spring, the ewes, towards the latter end of the month, should begin to have abundance of good food. Strong, healthy lambs can only be expected from ewes in good condition. Sheep intended to be fattened next winter, should now be purchased and placed in good pasture. In the case of Merinoes, select strong, thrifty wethers, three or four years old. There is no money to be made in fattening poor sheep in winter. Most of the fat must be put on between now and November.

Swine.—Low prices are causing farmers to neglect their pigs. It is poor policy. If kept at all, they should be kept well. Our own plan is to feed the pigs at night, but not in the morning. They are then hungry enough to search for their food, to run on the stubbles, to pick up wormy fruit in the orchard, and to eat weeds and grass. At night they have a feed of soaked corn, and go to sleep contentedly with a full stomach. They should have constant access to fresh water, and an external application will be gratefully received.

Winter Wheat.—Where wheat is sown after barley or oats, the land should be plowed as early after harvest as possible. If this can not be done at once, harrow the land, to break down the stubble and destroy weeds, and cause the seeds to germinate. The rubbish will act as a mulch and keep the ground moist, and it will plow easier than if left unprotected to bake in the scorching sun. The fallows must not be neglected. Get every thing ready, but do not be in too great a hurry to sow. If the land is in good condition, from the 5th to the 25th of September is the best time in our latitude. To prevent smut, the old-fashioned plan of moistening the seed with fermented chamber-lye, and then drying it with quicklime, is safe, and, if thoroughly done, effective. The liquid from the stables, if fermented so as to develop the ammonia, is equally good. The main point is to turn over the heap until every seed and every part of each seed is moistened with the liquid, and the same is true in regard to the lime. A simpler and entirely effective plan is to dissolve, for each bushel of seed wheat, 3 ounces of blue vitriol in one quart of water. When cool, sprinkle it over the wheat, and turn carefully until every seed is completely moistened. Old wheat will require three pints of water to each bushel. No lime is required to dry the wheat, and, in fact, would probably do more harm than good, as it would decompose the vitriol. The seed wheat, after being treated with the vitriol, may be kept for days or weeks without injury, which is not the case in the old plan above described. Wheat is sometimes treated with brine to prevent smut, but we have always thought it rather risky.

Renewing old Pastures, by harrowing them and sowing timothy, can be done any time this month, or the beginning of the next.

Manure may be drawn out and spread on the pastures or meadows, or on grass or clover land intended for corn next spring. Many farmers are afraid that the hot sun will evaporate all the ammonia. It would do so if there was any free ammonia in the manure, but such is rarely the case. Spread the manure at once, and be careful to break up all the lumps. Thomas' smoothing harrow is a capital implement for this purpose.

Root Crops must be hoed and thinned out. Most people are inclined to leave the plants too thick. White turnips may be sown any time during the month, and even ruta-bagas sometimes afford a fair crop on good land, sown early this month.

Work in the Horticultural Departments.

At this season there is, as usual, a great deal of work to be done in the garden and orchard, but the labor of planting is very light compared to that of two months since; all that now needs to be done is to keep the horse and cultivator busy, stirring the soil as often as possible. Many things can be done now to good advantage about a place, such as cutting brush and weeds along fence-rows and making it look as neat as possible.

Orchard and Nursery.

The newly-set trees ought not to be neglected during the hot, dry weather of August, when a little timely attention and care would save many which would otherwise perish at this trying season. A heavy mulch applied now will save a great deal of time in hoeing, besides keeping the ground moist.

Marketing.—In marketing early apples and pears, care must be used in packing, to prevent the fruit from becoming bruised during transportation. All fruit should be picked by hand, after it is fully developed, but before it softens. Establish a good name for fair dealing, and have each package of uniform quality throughout. In picking take care not to break or injure the limbs.

Insects.—Pick up all unripe fruit which falls to the ground and feed to the pigs, or allow the pigs to run in the orchard, where they can devour the fruit as fast as it falls. Remove all late caterpillars' nests as soon as they make their appearance.

Budding should be done whenever the bark is loose enough to run easily, and well-ripened buds can be had.

Borers.—If borers are found, probe with a wire.

Seeds and Seedlings.—Young seedlings require shade from the scorching sun; this may be given by using laths, as already mentioned, or evergreen branches. Collect tree seeds as soon as ripe, and either sow now or preserve in sand until spring.

Weeds must be kept out of nursery rows, either by the use of the horse or by hand. Where old trees have been neglected, and the ground near the body of the tree is occupied by weeds and suckers, a heavy breaking-up hoe can be used.

Kitchen Garden.

During this month most of the vegetables will be fit for the table, and a well-stocked garden will furnish a family with a supply of healthy food during the summer, as well as a good part of the winter. The soil between the rows of plants must be kept light and free from weeds by the use of the cultivator, or with some hand implement.

Asparagus.—Never allow the bed to become filled with weeds, but keep the soil between the rows hoed often. This is a good time to apply a dressing of manure, in order to give the plants a good start in the spring. If new beds are wanted, gather a supply of seeds.

Beans.—Plant Refugee or other early sorts for late use and for salting. If Limas are inclined to run higher than the poles, pinch them. Never hoe beans until the dew has dried up, as it will cause the vines to rust.

Beets.—Where the plants are too thick, thin out and use as greens. Keep the rows free from weeds, and in dry weather apply liquid manure.

Cabbages and Cauliflowers.—Plants, if set out now, will produce a crop in most localities. Where caterpillars are troublesome, destroy by hand-picking or by the use of salt or other application

Carrots.—Keep hoed and thinned, and if young carrots are preferred, sow for a late supply.

Celery plants for the late crop may now be set in well-enriched ground.

Corn will need constant care in hoeing and weeding; where seed is to be saved, select the earliest and best ears.

Cucumbers.—Cultivate the soil around the hills until the vines cover the ground. Gather for pickling as soon as they reach a suitable size.

Egg-Plants.—Draw the earth around the stem, and give thorough cultivation. A little straw placed around each plant will preserve the fruit from becoming soiled by touching the ground.

Endive.—Tie up the leaves of the early-planted crop when dry, to blanch them for use. Set out plants a foot apart for a late crop.

Herbs should be cut on a dry day, just as they commence to flower, tied up in small bundles, and dried in a shady place.

Lettuce.—It is of no use to sow lettuce now, unless one has a shady place, for it soon runs to seed.

Melons.—All fruit not likely to perfect itself ought to be cut off; this makes the remainder much finer. When the fruit approaches maturity, it will be benefited by turning occasionally, and by having a little straw placed under it.

Onions.—Harvest as soon as the majority of the tops fall over, and after being thoroughly dried store them in a cool, dry place. Store onion sets in an airy loft, with their tops on, taking care not to have them so thick that they will decay.

Peas.—Late-sown peas are liable to mildew, and produce a very scanty crop; if desired, some of the earlier varieties may be sown now.

Potatoes.—The early crop may be dug and sold, or if used in the family, dig only as wanted. The tops may be buried in the rows, or else placed on the compost heap.

Radishes.—The best winter sort is the Chinese Rose-colored; sow late this month or early next; if sown earlier, it will become overgrown.

Seeds should be gathered from the earliest and best specimens as fast as they mature, if one is anxious to improve his stock. The best way, in small gardens, is to buy most seeds from reliable seedsmen, as they cost less than home-grown ones.

Squashes.—Examine the vines to find and destroy all the injurious insects which infest them.

Sweet Potatoes.—Vines must not be allowed to root, and the soil kept clear of weeds, and light.

Tomatoes.—Destroy the large green worm which eats the foliage. Pinch the rampant shoots, and keep tied to some sort of trellis; or allow the vines to rest upon brush placed around the plant.

Turnips.—Ground from which early crops have been taken may be sown with turnips. Thin ruta-bagas, and keep the rows free from weeds.

Fruit Garden.

The main work here is the care of the fruit as it ripens; remove all superfluous growth, and keep the soil free from weeds. Where there is more

fruit than can be used, it should be preserved by canning, bottling, or drying. Directions have often been given in the Household Department.

Blackberries.—Do not allow the new canes to grow over four or five feet high, and pinch the laterals when a foot or eighteen inches long. Fruit for home use should be thoroughly ripe before it is picked, while that for the market must be gathered before it becomes soft enough to bruise in handling.

Dwarf Trees.—Thin out all poor fruit, and if the crop is too large, remove a part of it. Control the shape of the tree by pinching.

Grapes.—If mildew appear, give a thorough dusting of sulphur. Keep the vines tied to stakes or trellises, and do not allow them to become entangled with each other. Cut off all bunches which are affected with rot.

Raspberries.—Remove all of the old fruiting canes, and keep the new growth tied to stakes, to prevent its being blown down; three or four strong canes are enough for one plant to carry. The soil between the rows must be kept loose and clean.

Strawberries.—New beds, if set out with young plants, will produce moderately next spring. Old beds should be cleared of weeds, and thoroughly enriched with a good dressing of manure.

Weeds will grow in the fruit garden as well as elsewhere, if not kept down by constant cultivation. A thick mulch between the rows will save much time and trouble in cultivation.

Flower-Garden and Lawn.

The severe heat of this month often prevents the growth of plants, and it is not until the late rains have watered them that they produce their finest effect. Weeds will, however, grow, and they will require constant attention.

Box ought to be clipped this month, to preserve the edging in good shape.

Bulbs.—If any spring flowering bulbs are still in the ground, take them up.

Climbers.—The annual climbers ought to have strong supports, to prevent the wind from blowing them down. Keep the woody climbers tied up, and cut off all superfluous branches.

Dahlias ought to be tied to strong stakes, which should be firmly set in the ground. Remove all imperfect buds and flowers.

Grass.—Lawns and edgings need constant care to preserve their good appearance. They ought to be mowed once a week at least, and, if possible, twice. Where a lawn has been recently seeded down and weeds are abundant, many of the larger ones can be removed by the use of a spud; this is a thin-edged chisel, about two inches wide, having a socket for a handle, which may be of any convenient length; the root of the weed can be cut off below the surface without disturbing the grass.

Gladiolus.—Tie flower-stalks to stakes to prevent breaking by the wind, for if once bent it is very hard to bring them into an erect position.

Hedges.—Give their summer clipping this month.

Potted Plants.—Do not neglect them at this season, but keep supplied with water.

Perennials.—Seeds of these, as well as of biennials, are better if sown now, as they will generally produce plants large enough to flower next season.

Greenhouse and Window Plants.

The thorough renovation of the greenhouse should be finished before the pressure of fall work comes. See that all insects are destroyed by a thorough washing, and afterwards paint or whitewash the inside woodwork. If the heating apparatus is out of order, repair before cold weather. See that there is a good stock of potting material on hand for winter use, and also provide boxes and pots for the large plants which have been planted out during the summer.

Worn-out Stock.—There is no profit in feeding old stock. When cows and sheep are past their prime, they can not be made to pay for feeding. Therefore we would not advise sheep to be kept over five years, or cows over eight or nine. Occasionally a ewe or a cow will be profitable to keep for breeding purposes for three or four years after these ages, but no expectation of fattening them profitably need be entertained; and it is a question whether the gain in one way is not lost altogether in the other. After the system begins to run down, the teeth become worn, and food is no longer perfectly digested. Waste occurs, and though it is true the manure pile is enriched when aged stock is kept, the advantage does not compensate for the waste. During the latter part of summer, selections should be made for feeding for market next spring. No time should be lost then in preparing those of full age, intended for this purpose, as much care and attention must be given them and early feeding be commenced, or they can not be successfully brought into condition for market.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending July 17, 1871, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW-YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	380,000	2,911,000	3,415,000	51,000	321,000	815,000
27 days *last* m'th.	271,000	3,151,000	2,816,000	87,000	41,000	1,413,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats*
27 days *this* m'th.	343,000	3,436,000	2,225,000	59,000	6,800	1,371,000
27 days *last* m'th.	247,000	2,745,000	2,933,000	65,000	23,000	1,156,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	380,000	2,911,000	3,415,000	51,000	321,000	815,000
25 days 1870	378,000	3,341,000	1,228,500	76,000	53,000	734,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	343,000	3,436,000	2,225,000	59,000	6,800	1,371,000
25 days 1870	283,000	4,237,000	1,568,000	109,000	13,500	1,411,000

3. *Exports from New York, Jan. 1 to July 13.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	963,891	8,193,157	4,824,873	43,013	83,796	14,889
1870	880,626	7,904,408	164,468	65,234	——	9,758
1869	605,950	6,360,268	1,481,849	68,836	——	43,257
1868	481,663	2,956,522	4,044,602	153,093	——	39,368

4. *Stock of grain in store at New York.*

1871.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
July 10	336,163	634,954	96,915	——	274,099	190,541
June 12	280,350	292,188	114,783	3,480	334,459	142,572
May 9	283,700	239,245	160,734	50,725	376,226	171,933
April 10	811,871	180,947	150,964	164,398	709,363	171,897
March 13	1,523,785	204,388	150,514	329,349	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,498	481,863	1,409,995	215,124
Jan. 16	3,685,116	212,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,319	148,069	500,397	2,085,137	231,129
Nov. 9	2,092,900	300,000	116,800	400,400	2,125,000	——
Oct. 10	1,809,921	476,544	53,391	184,803	1,679,658	237,453
Sept. 12	1,387,487	761,891	50,869	107,474	1,053,079	130,881
Aug. 8	1,438,876	589,973	25,437	106,101	691,566	119,046
July 11	1,281,913	483,540	28,816	98,600	635,068	109,478
June 7	706,478	69,845	21,891	94,630	488,143	108,775

CURRENT WHOLESALE PRICES.

	June 15.	July 17.
PRICE OF GOLD	112¾	112½
FLOUR—Super to Extra State	$5 50 @ 7 00	4 60 @ 6 50
Super to Extra Southern	6 75 @10 25	5 15 @10 25
Extra Western	6 20 @10 25	5 40 @ 9 75
Extra Genesee	7 10 @ 8 75	6 50 @ 8 75
Superfine Western	5 45 @ 6 00	4 60 @ 5 15
RYE FLOUR	4 20 @ 6 10	4 00 @ 5 50
CORN-MEAL	3 25 @ 4 20	3 40 @ 4 15
WHEAT—All kinds of White	1 60 @ 1 85	1 45 @ 1 70
All kinds of Red and Amber	1 45 @ 1 65	1 30 @ 1 52
CORN—Yellow	76 @ 78	72 @ 74
Mixed	69 @ 76	67 @ 72
OATS—Western	65 @ 70	61½@ 70
State	66½@ 67½	65½@ 67½
RYE	1 02½@ 1 15	85 @ 1 12
BARLEY	Nominal.	Nominal.
HAY—Bale ₩ 100 lbs	1 00 @ 1 40	1 05 @ 1 45
STRAW, ₩ 100 lbs	85 @ 1 95	65 @ 1 65
COTTON—Middlings, ₩ lb	20¾@ 20¾	21 @ 21¾
HOPS—Crop of 1870, ₩ lb	7 @ 13	7 @ 13
FEATHERS—Live Geese, ₩ lb	65 @ 75	65 @ 75
SEED—Clover, ₩ lb	10 @ 10¾	10¼@ 11
Timothy, ₩ bushel	3 50 @ 4 00	3 75 @ 4 50
FLAX, ₩ bushel	2 30 @ 2 45	2 40 @ 2 50
SUGAR—Brown, ₩ lb	8¾@ 10¾	8¾@ 10¾
MOLASSES, Cuba, ₩ gal	39 @ 45	39 @ 45
COFFEE—Rio (Gold, in bond)	10 @ 13½	10½@ 13¾
TOBACCO, Kentucky, &c., ₩ lb	6 @ 12	6 @ 12
Seed Leaf, ₩ lb	12 @ 70	12 @ 70
WOOL—Domestic Fleece, ₩ lb	49 @ 60	50 @ 70
Domestic, pulled, ₩ lb	33 @ 53	37 @ 53
California, unwashed	23 @ 30	23 @ 40
TALLOW, ₩ lb	8¾@ 9¼	9 @ 9¾
OIL-CAKE—₩ ton	39 00 @41 00	40 00 @42 50
PORK—Mess, ₩ barrel	13 50 @15 75	14 75 @15 00
Prime, ₩ barrel	12 75 @13 50	12 00 @13 00
BEEF—Plain mess	8 00 @14 00	8 00 @12 50
LARD, in trcs. & barrels, ₩ lb	9½@ 11¾	9¾@ 11
BUTTER—State, ₩ lb	12 @ 30	13 @ 32
Western, ₩ lb	10 @ 23	13 @ 27
CHEESE	5 @ 12½	6 @ 12
BEANS—₩ bushel	1 25 @ 3 50	1 00 @ 3 75
PEAS—Canada, free, ₩ bu	1 35 @ 1 40	1 25 @ 1 85
EGGS—Fresh, ₩ dozen	16 @ 19	16 @ 21
POULTRY—Live Fowls	16 @ 18	18 @ 19
Turkeys, ₩ lb	16 @ 18	18 @ 19
Geese, ₩ pair	1 50 @ 2 00	1 50 @ 2 00
Ducks, ₩ pair	75 @ 1 00	75 @ 90
POTATOES, ₩ bbl	3 00 @ 7 00	2 50 @ 3 00
SWEET POTATOES, ₩ bbl	— @ —	— @ —
CABBAGES—₩ 100	3 50 @ 6 50	3 00 @ 5 00
BROOM-CORN—₩ lb	4 @ 8	4 @ 8
APPLES—₩ barrel	4 00 @ 9 00	2 50 @ 4 50
Raspberries, ₩ quart	— @ —	7 @ 18
Blackberries, ₩ quart	— @ —	13 @ 18
Gooseberries, ₩ bushel	— @ —	2 25 @ 2 50

Gold has been up to 113¾ and down to 112 since our last, closing, July 15, at 112½.....Breadstuffs have been offered with more freedom, and have been generally quoted lower, with a fairly active business reported in the leading kinds, for home use, shipment, and, to a limited extent, on speculative account. The arrivals of Wheat have been quite generally in poor order, while those of Corn have been well up, on the average, to the standard of merchantable. Several lots of new-crop Wheat, chiefly Southern and South-western amber, have been received and marketed within the month at equal to full current rates. The quality, in most instannces, was superior to that of the earlier offerings of new-crop last year.....Provisions have been depressed and lower, yet not active. At the close, more steadiness was apparent. .....Cotton has been less freely dealt in, at variable prices, though closing with a fair show of firmness, on a less liberal offering of stock..... Wool has been in good demand, at advancing prices.....Tobacco, Hops, Hay, and Naval Stores are in request.

New-York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
June 19th	8,566	63	2,971	28,093	26,979	66,672
June 26th	7,894	113	4,229	26,035	29,589	67,860
July 3d	7,542	102	2,942	26,584	29,140	66,310
July 10th	8,196	48	2,159	29,751	32,720	62,874
Total in 4 Weeks	32,198	326	12,301	110,463	108,428	263,716
do. *for prev. 4 Weeks*	27,117	388	15,634	79,266	83,300	205,511

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	8,049	81	3,075	27,616	27,107
do. do. *last Month*	6,779	84	3,903	19,804	20,899
do. do. *prev's Month*	6,991	72	4,259	16,737	15,448
Average per Week, 1870	6,847	97	2,240	28,151	17,108
do. do. do. 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	64	1,320	22,154	20,665
do. do. do. 1866	5,748	94	1,200	20,000	13,000
do. do. do. 1865	5,235	118	1,500	16,091	11,023
Total in 1869	326,280	4,827	91,083	1,499,509	798,199
Total in 1868	298,128	5,466	82,571	1,413,479	978,061
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,271	6,161	71,991	896,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—With an average increase of 1,300 bullocks per week, during the past month, the markets have ruled dull and decidedly against the drover. There has been a steady decline from beginning to end, amounting to about 1c. per ₩., the closing rates being 3½c. below what they were one year ago. Texans begin to come forward somewhat freely—much faster than they can be sold. Operators in this kind of stock are likely to have a hard time of it. When people are starved to it, they take to the dry Texan beef, but in a glut of good stock, as at present, when fair Illinois cattle can be bought at 10½c.@11c., these wild breeds go begging at 8c.@8½c. They are frequently sold at about what they cost in Illinois. Altogether, the trade is very discouraging for Western shippers and Eastern speculators. Low freights alone save them from heavy losses, but do not always keep them from going behind.

Below we give the range of prices, average price, and figures at which large lots were sold:

June 19th, ranged	9 @14 c.	Large sales	11½@18 c.	Av. 12¾
June 26th, do.	8½@13½c.	do.	do. 11½@12½c.	do. 11¾
July 3d, do.	8½@13 c.	do.	do. 11¼@12¾c.	do. 11¾
July 10th, do.	8 @13c.	do.	do. 11 @12 c.	do. 11¾

Milch Cows.—The price of beef has much to do with the value of milch cows. Cattle ruling very low, causes a dull trade in milkers, and prices are lower, or $35@$45 for very poor; $50@$65 for ordinary to fair, and $70@$85 for good to extras.....**Calves.**—The falling off in numbers is not equal to the lessened demand, hence trade is slow and prices low. Poor grass and buttermilk calves can scarcely be sold at all. They will only bring 3½c.@4½c. per ₩., a large lot, of 170 lbs., selling at 4c. Ordinary milk veals are quoted at 6c.@7c; fair to prime, 7½c.@8½c.; and only extras reach 9c.....**Sheep and Lambs.**—Arrivals are much larger, swelled by the free receipts of spring lambs. Fat sheep have been in request every week, their surplus fat being in demand for dressing off thin lambs. Still there is an average decline of fully ½c. per ₩. on sheep for the month. Poor stock sells at 4c.@5c.; fair to good, 5½c.@5¾c., and prime to extras, 6c.@6¼c. Lambs suffer most, Western selling at 7c.@8½c.; few choice, 9c., with Jersey and State at 8½c.@9½c., and 10c. for very fine....**Swine.**—These, too, are in heavier supply, but there is no decline. In fact, we quote ¼c. advance during the past few days, live selling at 5½c.@5¼c., with dressed at 6c.@7c. Some small pigs, which are scarce and wanted, reached 7¼c.

Crops in Virginia.—Gilbert Child, Staunton, Va., sends us specimens of wheat, rye, and timothy, grown in his neighborhood, where he says the best yield of wheat is 44 bushels per acre, though some claim to have made much more than that. Average yield of the county, 10 bushels. Land is worth sixty dollars per acre; labor is plentiful at one dollar per day and board in harvest, and eight to twelve dollars per month by the year. The specimens sent would indicate what we should call a fair crop, and would equal the average of a good crop in New York State. We rarely *see* a crop that will yield over 25 bushels of wheat, or 30 of rye, though we often hear of them. The writer never succeeded in

getting more than 25 bushels of wheat or rye, as the average of a crop, fairly measured; but out of such a crop much better specimens could be picked, than those sent.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New-York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead-Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Special Notice.—Communications giving or asking for information are always acceptable. These should always be accompanied by the name of the writer. The name will not be published whenever there is indicated a desire that it be withheld. Writers may choose any signature they please, but we must be furnished with the real name. We are under no obligation to return rejected manuscripts. Where stamps are sent for their return, we, as a matter of courtesy, try to send them back. Writers should retain copies of articles which they consider valuable, as, with the best intentions in the world, we may not be able to return them if called for after the lapse of considerable time.

"The New York Agricultural Editorial Excursion" is announced as having started for the Mammoth Cave, Kansas, Colorado, and the Parks of the Rocky Mountains. Upon looking over the list of excursionists which start out under this flaming banner we do not find the name of a single editor of an agricultural paper. There are several male and female *attachés* of agricultural and daily papers who have thus boldly pushed off upon the railroad, and are ready to brave its dangers. For fear that these lambs (and—we don't know the feminine for lambs) should lose themselves in the agricultural intricacies of the Mammoth Cave, or get astray among the attractions of Denver, we have induced Tim Bunker to go with the party. If any thing transpires worth knowing that the sharp eye of the 'Squire does not see, we shall—for the first time—be mistaken in our man.

Odd Fellows will be specially interested in an announcement in the business columns. The publishing business association has been thoroughly reorganized on an efficient basis, and the Magazine will doubtless have a splendid success.

Wheat and Chess.—O. Gillette, Saybrook, O., sends us some newspaper accounts which shake his belief on the question of the degeneracy of wheat into chess. One of these statements is by Lewis Austin, of Austinburg, O., who some thirty years ago found "a perfect head of wheat out of which grew a perfect head of chess, each of which was well filled with its respective kind of grain." This is what we have been trying to get a sight of these many years, and have offered a reward for it. People have written us that they had such heads, and we have sent immediate requests to be allowed to see the specimens, but never have been able to inspect one. It is a matter upon which we shall accept the testimony of no one else, as the sources of error are so many that one not used to examining plants may be readily (and honestly) deceived. Until we can *see* and examine a specimen showing distinctly wheat and chess growing from the same root, or a grain intermediate in character between the two, we shall insist that the frequent claim that wheat degenerates into chess is not proven. Send on your specimens.

Farmers' Clubs.—A young farmer asks how to organize a farmers' club. These associations generally result from the action of some one go-ahead individual, who invites a few of his neighbors to a social meeting, where they converse without formality on the subjects most interesting to them, compare notes generally, and make arrangements for continuance. When the ice is broken and an interest in the thing is felt, there do not seem to be any difficulties in the way of getting along. The main point is to choose a chairman whose principal duty will be to prevent two men speaking at one time, and in other ways to see that the meetings are conducted in order.

Poppy Culture.—O. B. McCurdy, Muskingum Co., O. We gave considerable space to this matter last year, and in April, May, and June, 1870, you will find full directions. As your questions show that you have not looked into the matter at all, we refer you to those articles. It is too late to begin this year.

Building a Greenhouse.—The article on pages 301 and 302, upon building a cheap greenhouse, is, by one of those accidents that will sometimes occur in a printing-office, rather abruptly terminated. As we have in hand for September an article upon heating such a house, we can then give the description of the internal arrangement, which is now unfortunately omitted.

Criticisms.—"M. E. W.," Bowling Green, Ohio, is informed that letters which the writer does not consider of sufficient importance for him to attach his name to them, are not of sufficient importance to require a reply.

A Stock-Growers' Association.—Somebody at Cheyenne (whose name is entirely illegible) sends us a very plainly-written letter asking where he can obtain information as to the preparation of the constitution and articles of association for a "Territorial Stock-Growers' Association." We have no definite information on the subject, but, doubtless, many of our readers may have, and if our correspondent will be good enough to send us his address, we will try to put him in communication with the officers of some organization.

Corn should not be allowed to stand until a frost has injured it. As soon as the ears are glazed it may be cut up. Much corn is ready to cut by the middle of August which is left from day to day, until at last a frost occurs, and the value of the fodder is deteriorated, possibly one fourth. The great value of corn fodder is becoming recognized, and more care is exercised in harvesting it than heretofore. Cutting it at the right time is one of the first requisites in preserving it, and if this is neglected, no after-care can repair the damage.

Wash from Roads.—"I. A. V.," Kanawha, Va., asks if the wash from roads should be allowed to run into the fields.——By all means. Keep the ditches open, and turn all the road wash into your fields in such a manner as to have it spread over as much ground as possible. It contains much fertilizing matter.

Breaking in Young Steers.—A "Subscriber," Carbon Cliff, Ill., asks how to break a pair of young steers to the yoke. First train them to lead by a rope attached to the horns. Then procure a light yoke and bows, and teach them to stand with them on for a few days until they get used to them. Then take them out and exercise them gently, and with great patience, teaching them the meaning of the terms used in going to the right or left and backing. If they get restive, quiet them with a little salt and some coaxing. Never unyoke them while they are excited; cool them down first. Let the lessons gradually increase in length until they understand their business; then attach a chain, and soon after a small log or other weight may be given them to draw. Working in this manner, they may soon be broken in to do light harrowing or other work not too heavy for them. It would be well if oxen were broken in to the use of a line, attached to the horn, and the shouting commonly made use of were abandoned.

To Prevent Cows Holding up their Milk.—J. A. Wilson, of Erie Co., N. Y., says the best remedy he has found for preventing cows holding up their milk, is to "take a log-chain, double it, then lay it gently over the cow's back—on the 'small of the back'—so that the ends of the chain will clear the floor. The cow loses the power of holding up her milk, and after a few trials will forget the habit."——That cows *do* hold up their milk, every one who has had any experience knows to his sorrow. But still it is, to say the least, doubtful whether cows have the power of holding up or letting down the milk *voluntarily*. It is more likely that the muscles refuse to relax, from nervous excitement, rather than from a mere act of the will. And if so, any thing that will soothe the cow, such as kind words, or a mess of palatable food, would be the proper remedy.

Hide-Bound Calf.—Jas. Wilson, Fond du Lac, Wis., has some calves that are hide-bound, and wants a remedy. There is no better remedy than oil-meal, which will act as a gentle laxative on the bowels and remove the causes of the disease.

Horse that will not Lead.—Wm. Johnson, Benton, Tenn., asks how to make a horse lead. If the horse drags on the halter, or stops and pulls back, take him by the head close to the jaws, and stand back against the shoulder. If he objects to go then, touch him behind with a light switch. With patience you will persuade him to start, and with a little practice he will keep up with his leader.

SUNDRY HUMBUGS.—To many of our readers, the following will not be new, as multitudes have received this or a similar document. To others, it will be a curiosity, as it is a fair sample of a great variety of letters used by the "Queer" swindlers:

NEW YORK, June 9th, 1871.

DEAR SIR:—Your favor rec'd. I have concluded to take you into my confidence, and I here beg of you for God's sake not to betray me. I have at last got hold of the right thing, and all I want is a very few *true* men, and I guarantee we can each make a fortune in 6 months. I was trained up as an Engraver from boyhood, and after executing many plates for different banks, I was employed by the Government on the Treasury Notes. My last work was the engraving of the plates for the 1, 2, 5, and 10 dollar notes of the old Greenbacks issued in 1863. These bills are still in circulation, and I can refer you to them as evidence of my skill. When I had the plates completed, Sec'ty Chase publicly complimented me as the most skillful engraver in the U. S. Shortly after this, however, I was removed to make place for a political favorite, and I then vowed I would never die until I got square with the Government. I have been at work for years in secret, and I now have produced counterfeits of the 1, 2, 5, and 10 dollar plates which are absolutely perfect. I have printed a large stock of bills which I want to sell immediately. I use nothing but the very best paper, and the Dies, Signatures, and every thing are so perfect as to defy detection. I know there is a flood of spurious money afloat which I would not advise you to touch but I solemnly swear no one can detect these bills. Only keep perfectly sober, and I pledge you my word you can have no trouble. I have the money done up in packages of $250 and over, all properly assorted, and I will sell it for 10 per cent. If you mean business, come on here to 1,210 Broadway, and inquire in the Stationery store, which I carry on as a cover, and you will find me. Do not mention the nature of your business to any one, for I am in high standing here. Just mention the password "*Jok*," and I will know it is you. When you come bring money enough to buy a large stock, as I guarantee when you see the money you will buy all you can. If you can not come on, let me know, and I will send you the money on receipt of the price, for I must get my stock off at once. To favor you, I will send you $250 for $10 only, and you can pay me $15 when you pass it. I will sell you a $500 package for $18 cash and $30 after, or $1,000 for $32 down and $60 after. If you take a $5,000 package, I will send it for $120, and you can pay $300 after. Always send me National Bank bills. I can make Greenbacks enough. You can send the money simply folded in a letter, *well sealed*, and plainly addressed to me. I will send the money in such a way that no one will suspect it is money, and you need have no fears whatever. If you do not happen to have the money ready when you write, don't delay, but tell me how much you want, and I will send it by Express, C. O. D., and you can have the money ready to pay the Express Agent when it arrives. Now, my dear sir, I again implore you to use the utmost secrecy in this business. Do not mention it to your dearest friend, and while you remain faithful to me I solemnly swear to be true to you.

Yours, in Truth and Sincerity,
C. EMERSON.

This time, as a blind, be sure to address
☞ MISS BELLE VERNON, 1210 Broadway,
and I will certainly get the letter.
P. S.—Send money by express, if possible.

By sending out a great number of such letters, now and then one of them reaches a person green enough and dishonest enough to respond. If money is sent, of course it is never heard from. If a C. O. D. box is sent, the recipient finds, after paying the bill, and going to a secret place to open the parcel, that he has only old paper, sawdust, etc. If he calls, he is taken to a private room, stripped of all his money, usually by the aid of a bogus policeman, or he is shown a box of real money, and given another bogus one. In any case, he dare not complain, as he has himself tried to deal in counterfeits. Similar letters to the above are signed Wm. Webb, *alias* D. A. Mason, 1210 Broadway. Letters like these are sent to those who answer the following advertisement, which we are sorry to see in newspapers that claim to be respectable and reliable:

A MILLION DOLLARS.

Shrewd but quiet men can make a fortune by revealing the secret of the business to no one.
Address **C. EMERSON,**
ma 20 4w 1210 Broadway, New York.

Conrad Long, hailing from the same place (and doubtless the same operator), sends neatly printed gilt certificates stating that so and so have drawn "solid gold watches, valued at $200," in a Spanish Policy, which will be forwarded on receipt of the usual 5 per cent—but said Long is just leaving for Spain, and the money must be sent by mail to Mr. Edward Miller, his appointed agent for the United States. What surprises us most is that many people

have faith enough in this humbug to ask us to receive the prizes and forward them, for which trouble they will pay us a commission. The "Spanish policy," advertised at many places, is a pure swindle.....We have always supposed that the good people of St. Lawrence Co., N. Y., were too intelligent to harbor a "gift enterprise" like that announced by "O. J. Stickles, Manager," Canton, N. Y. If he does all and just as he promises, the scheme is not a whit more nor less than a lottery, and will be let alone severely by all respectable people. We have a lot of tickets, sent us by generous subscribers, which, according to the promises made, ought to draw lots of farms, sewing machines, casters, center-tables, etc., etc. We haven't room to store so many things, Mr. Stickles!..... 100,000 people are invited to invest $10 each in a "Grand Gift Concert," at Louisville, Ky. If so many wrong-headed people can be found, 16 are to have prizes of $1,000 and upward; 243 of $200 to $900; 446 of $100, and **99,279** *contributors are to get nothing at all*, except the assurance that if any thing is left "after paying the expenses of the enterprise, and making the distribution of the gifts," "the balance will be appropriated to the establishment of a Free Library in Louisville." Had not these 99,279 persons, in which class the reader will most likely be found, better keep their money, and let the 721, among whom the reader will most likely not be found, put up the $1,000,000 required to give them a *chance* to draw $350,000? This affair—a pure lottery—is an outcrop of the San Francisco enterprise, managed by the same party, who, of course, finds it to pay *him*.....E. F. Rogers, 131 Nassau St., *alias* H. J. Worth, 4 Broadway, *quondam* 3½ Park Row, is sending letters all over the country, offering to each person addressed, a ticket in the Royal Havana Lottery, which draws every Saturday, that will surely draw $1,000 for each $1 said persons invest—which letters show the said so-called Rogers, *alias* Worth, to be a swindler, intending to pocket all money received, or a fool to sell thousands of people the certainty of getting $1,000 for $1, instead of taking these chances himself, or a liar in pretending to know what tickets will surely draw prizes. Our generous friend Young, editor of the Saratoga Sentinel, claims to be too poor to raise the dollar or two, and kindly offers to go halves with us in the prize offered, if we will advance the said dollar or two, and receive the $1,000 or $2,000. Thanks, friend Y., but we are too poor also, to spare $1, even, for *such* an investment. Can't you divide the cost with us, and send along a 50c. stamp? Please *bring* it down, and when we get the prize we'll go out on a bender and order one ice-cream and two spoons, regardless of expense.... A Michigan swindler, with more names and hailing places than we can print, sends out circulars and advertisements with great promises of wages, profits, etc., to those who will send him from $1 to $10, for rights, recipes, etc., including "Safety Oil," etc. He, of course, pockets the money, and if any victim takes the trouble to follow him, he has changed his name and place. We have frequently exposed him, his humbug oil, etc..... W. D. Miller & Co., Philadelphia, pretends to offer 100,000 gold watches, etc., worth $100 each and less, for $1.25 each, which is all bosh. He will give you nothing for $1.25 which does not pay him a round profit at that price. If there were not many foolish people, he could not pay his printer.....We are in continual receipt of the circulars and flaming sheets of perambulating Doctors, of immense pretensions, who advertise a place of business at some central point, usually at the West, and announce visits at specified places on particular days. Some of them give hundreds of names as references, and reports of scores of cases of remarkable cures. These are too numerous to describe in detail. We say positively, that one and all of these Doctors are outrageous quacks. The names given are usually fictitious; those of well-known persons are used without permission, and the few certificates that are genuine, when any are, are from weak, nervous people who have been cured of some imaginary disease by their faith in the pretentious claims of the quacks. Any man advertising to cure "Cancers," is a swindler. See our remarks on this subject last month, p. 240. We are asked our opinion of California Wine Bitters, Vinegar Iridin, and a hundred other nostrums. Ans.: If you have a mean, sheep-killing dog, which you are too tender-hearted to get rid of by cutting his tail off close behind his ears, make believe he is sick, and dose him with *any* one of these advertised medicines. *Caution:* Keep the bottles, boxes, or packages in a safe place where no human being can, by any possible mistake, swallow any of the stuff. N. B.—This includes each and every advertised medicine, lotion, bitters, soothing sirup, nerve antidote, electrical sure-cure, etc., etc., etc., etc., etc., etc., etc., etc., etc., etc.—no matter how finely put up in glass or gilt parcels. You have our opinion, founded on much study and observation, and we have looked into medical science as much as half the doctors, and all the quacks in the country... ..There is no photographic apparatus for $1, or for $5, that will take pictures worth a penny. West Virginians, and many other people elsewhere, will do well to heed this and save their money. The name of the sellers of such things is legion.....The "Arabian Secret" seller, recently exposed in these columns, has gone over to New Jersey, and taken a new name and P. O. ... The "New York Cash Prize Company" is still catching greenhorns, but will not take in many editors, unless cash goes with orders for advertisements "direct," and then only those who sell space to *all* paying comers. .....Here comes another "Academy of Music," in Charleston, S. C., to be given some one of the **150,000** people, who are asked to contribute $5 each to the "South Carolina Land and Emigration Association." One person in seventy is offered a prize of from ten dollars to an Academy of Music. Every good singer, who wants such a building, and knows he will draw it, better walk up and put down five dollars. Of course, **147,596** other persons, who don't want any prize, and can't get any, will help him buy the building by giving $5 each.....If not satisfied with the above, and you know how to keep a hotel, there is a "Caroline County Land Association," in Wilmington, Del., offering you the Leprerre Hotel in Denton, Md., "*worth*" $25,000, that only asks you to give $2, to have *one* chance in *fifty thousand* to draw said hotel.....**Or,** for $2, Omaha, Neb., offers you *one* chance in *nineteen thousand*, to get a cash prize of $20,000, all for the benefit of a public library!.....**Or,** for the same money, you can have *one* chance in *fifty thousand*, at a Fruit Farm, in Iowa City, "valued at $30,000."..... **Or,** for $3, you can have *one* chance in *two hundred and thirty-four thousand* at the Pattison Market, Elmira, N. Y., valued at $100,000! .....**Or,** for $5, you can have *one* chance in a *million*, more or less, to become the proprietor of the "New Memphis Theater."..... **Or,** for $5, you can have a similar chance in a "Monument to the Confederate Dead of Georgia," in nine hundred acres of land in Lincoln County, Ga., and in a prize of $10,000 U. S. greenbacks. Query: Will the deceased, or their friends, like this commingling of Federate and Confederate affairs? If you don't like any of the above "Splendid Chances," our Humbug Drawer can supply any quantity of others, in any one of which you will be a trifle more likely to draw a prize than you will be to be buried in the moon, with a green-cheese monument a mile high. But chance is a great thing; so hand over the money. The operators will be profited, i-f y-o-u a-r-e n-o-t.....A late swindle, becoming quite common, is that of writing to a distant man (or woman), and telling him (or her) that some relative or person of the same name has recently died, leaving considerable property, and that the operator has strong reason to believe that the person addressed is entitled to quite a slice of the estate, *and* that $5, or $10, or $20 will pay the said operator, who claims to be an "Attorney at Law," for looking up the matter. Several thousands of such letters are being scattered over the country. They catch a good many dollars. These swindlers are located all over the country, and only address persons living at a distance. This is a shrewd dodge, and many quite sensible people are caught by it.

Scolymus.—"T. B. H.," Hillsboro, N. C., sowed some Scolymus this spring, and it is now running to seed. He asks if the root will be good after the seed has formed.——With us it does not flower the first season. We should think that, like parsnip and carrot, the root would be worthless after it had produced seed. Still, as in its native country the Scolymus is perennial, it may, after seeding, form a supply of new roots. This is a matter in which we have had no experience, and we hope T. B. H. will tell us what the result is in his case.

Cutting Cions.—"A. J. W.," Port Gibson, Miss. One great object in cutting cions in early winter, is to be able to graft at any convenient season. If the cions be dormant, we can extend the season of grafting over several weeks, but if we delay cutting them until the time for grafting arrives, the business must be hurried up. If vegetation has started in the cion, the check it receives in removal from the tree is likely to prove fatal to it. Cions may be cut at any time during the period in which the plant is perfectly at rest. The growth of the previous season should be taken. The question "How dry should the cions be?" we suppose refers to the keeping of them. The object should be to preserve the natural moisture; they must not be allowed to shrivel, nor should they be wet and water-soaked.

Hard-Milking Cow.—Y. C. Smith, Carbondale, Pa., asks how a hard-milking cow can be made to milk easy. If the difficulty is natural to the cow and there is no stricture in the orifice of the teat resulting from disease, we do not think there is any remedy. We should feed the cow for the butcher. If the trouble has been caused by garget or inflammation of the udder that has resulted in stricture, or partial closing of the milk passage, it may be removed by cutting. The operation, however, is a delicate one, and we would rather not perform it unless the cow is a valuable one.

Four Lambs at a Birth.—William Woodzell, of Bath Co., Va., writes that he has two sheep that had four lambs each this spring. The year before they had three each. Seven of this spring's lambs are still alive and doing well. We have known frequent instances of common long-wooled sheep having four lambs at a birth. But it is not a habit that it is desirable to perpetuate in breeding ewes. We like good, strong ewes to have twins, but not triplets or quartets.

Relative Nutritive Value of Skimmed Milk and Corn-Meal.—"A. S. S." We can not answer this question any more than we can tell (as many pretend to do), how much bread is as nutritious as a pound of beef. One thing we do know, skimmed milk and corn-meal together are better for hogs than either alone. If you can get 10 cents per gallon for the skimmed milk *on the farm*, it will pay better to sell it than to feed it to hogs.

A Neglected Orchard.—"Lowery," Jasper Co., Tenn., has an orchard of some twelve acres, which, having been used as a camping ground by both armies during the war, and neglected since, is in a bad condition. He rightly concludes that the orchard needs both manuring and pruning, and asks advice. Pruning may be done at almost any time, except in early spring, when vegetation is vigorous, and in winter, when the limbs are frozen. The wounds should be covered with melted grafting wax. The amount of pruning will depend upon the condition of each individual tree. Remove limbs that cross and crowd each other, and leave the top open to light and air. Manure may be applied in autumn and winter: good, well-rotted stable manure is best. Lime and ashes applied before the manure, and forked in around the trees, will be found useful. If the ground has run up to briers and coarse weeds, a flock of sheep will do good service in reducing them, and their droppings will help fertilize the soil. The sheep should not be kept in the orchard during winter, as in the absence of green food they may gnaw the bark of the trees.

Fleas.—"H. E. C." says his "whole neighborhood" (but doesn't mention where) is infested with fleas. Pennyroyal and Tansy have been recommended. We should try Persian Insect Powder. Will any one help H. E. C.?

Strawberry Questions.—A subscriber (Athens, Tenn.) asks: 1. What strawberries are known to succeed best on red clay, in the South? 2. In strawberry culture, fruit is the main object. It is well understood that different substances, taken as food, go to form the bones, flesh, and muscles of animal bodies. Is this true of plants? Do certain kinds of food produce vines and leaves, while other kinds produce fruit? 3. What kinds of manure are found, from experience, best calculated to produce fruit? 4. Is it well authenticated that potash, at the rate of a pound to a barrel of water, applied twice a week, will cause plants to throw out large quantities of runners and produce a luxuriant growth of vines? And that ammonia—sulphate or carbonate—at the same rate, and applied in the same way, will produce large quantities of fruit, but cause the fruit to ripen late? 5. Can these substances be purchased at such a price as that their use on a small scale will be profitable? 6. The new plants of some varieties seem disinclined to take root. What treatment will be likely to help the matter? ——*Answer.*—1. The Wilson succeeds almost everywhere. Upon a clay soil we should try Jucunda and Triomphe de Gand and Napoleon III. 2. Practically, the parallel between plants and animals does not hold. You can not have fruit without an abundance of healthy foliage. 3. Well-rotted stable manure, especially that from cattle, is best. 4. Potash is excellent for the strawberry. A vigorous plant will produce an abundance of runners. Ammoniacal manures are also useful. 5. Potash is most readily obtained in the form of ashes, and Peruvian guano is the cheapest form of ammonia. 6. Probably the surface is too dry. Put on a mulch. If our friend will use plenty of good manure, he need not trouble himself about fertilizing, for fruit especially.

Tomato Wine.—"J. C. B.," Rulpsville, Pa. We do not know how to make "a good wine" out of tomatoes, and do not believe that it can be done. We have seen a miserable, sweet, alcoholic liquid made from tomatoes, and we thought it an insult to a respectable vegetable to put it to such a use.

Scab in Sheep.—H. S. Burris, Clinton, Mo. When this disease affects a flock, the closest attention is required, or it will spread; flies will "blow" the affected parts, maggots will breed, and the sheep perish

most miserably. To cure and prevent, use common mercurial ointment mixed with four times its bulk of lard, rub it on the skin in a line from the poll to the tail, and on lines four inches apart on the sides of the animal. A mixture of lard, sulphur, and carbolic acid, in the proportions of one hundred parts of lard, twenty-five of sulphur, and one of pure acid, may be rubbed on the sores, and the flies will be kept off. Common creosote may be used in place of the acid, doubling the quantity.

Glycerine.—"M. L.," Jersey Shore. We do not know "how" glycerine can be used in "sealing canned fruits." Can any body tell her?

Plaster.—W. P. Tate, Clearfield, Pa., wants to know how to use plaster. Plaster for corn should not be used in the hill; it should be scattered over the corn when a foot high, a handful to three or four hills; it acts best in moist weather, and when the leaves are damp with dew or rain. It is now thought best to plaster clover early in the spring, and again when it covers the ground, using fifty lbs. per acre each time.

Alfalfa.—J. R. R. Moore, Worcester Co., Md., asks about alfalfa or Chili clover, and where the seed can be procured. It is Lucern, and nothing more. Having been cultivated for ages by the Spaniards as a forage plant, it was doubtless introduced by them into their American colonies, north and south. The seed can be procured at any seed store for about fifty cents per pound. Twenty pounds broadcast, or nine pounds in drills, nine inches apart, is the quantity per acre.

Lime vs. Ashes.—A correspondent from Nottoway Co., Va., asks how much ashes (unleached) would be equal to a bushel of lime. This is like asking how much cheese a pound of butter is equal to. A bushel of ashes contains, in eighty pounds of weight, from thirty to sixty pounds of lime, but it is not in the condition in which it is used in agriculture, viz., quicklime; and the things are therefore not comparable. Ashes are valuable for the potash and phosphoric acid they contain; lime for its solvent action on all vegetable and many mineral substances. The commercial value of ashes is double that of lime under ordinary circumstances.

Docking Lambs.—Isaac S. Batchtel, Stark Co., Ohio, docks his lambs as follows: He takes them between his legs with the rump before him, holds the tail between the thumb and two fingers, pressing up the skin as much as possible; then, with a stout pair of shears, cuts off the tail about two inches from the root. He continues the pressure until the blood "clots," when the bleeding will stop. We would suggest the application of blue vitriol (sulphate of copper), powdered, which not only cauterizes the wound, but keeps off the flies. The additional pain is only momentary. The earlier docking is performed, the better.

Harvesting Peanuts.—J. H. Yarnall. Peanuts are usually harvested immediately after the first frost, but where it is desirable to get the crop to market early, they are sometimes pulled earlier. The later the crop can grow, the greater the yield of nuts, while on the other hand, the vines are more valuable as forage if pulled and cured before they are touched by frost.

Oxford, Pa., Fair.—"T. F. W." We do not publish articles of the kind you sent unless the name of the writer is attached. It would seem to be as easy to write a full name as to append initials.

Currant Worms.—W. G. Barton, Salem, Mass., writes that he finds air-slaked lime a "sure cure" for the worms that attack the foliage of the currant and gooseberry....C. A. Morse, Leominster, Mass., uses with equal success a solution of one ounce of copperas (sulphate of iron) in a gallon of water. By "surface application" in the article referred to, the surface of the soil was intended.

A Lactometer.—A. M. Walker, Randolph, Wis., made use of the tubular portion of the chimney of a German student's lamp, and closed one end by filling the cover of a tin box with wetted plaster of Paris, and setting the tube in it. He attached a strip of paper graduated to 100 parts, as a scale, and had a serviceable milk tester. The hint may be of use to those who live far away from druggists and glass-dealers.

How Long will Seeds Keep?—"R. G. L." asks to what age do certain seeds arrive "before they become valueless?"—Much depends upon how they are kept. The practical point, and probably what our correspondent wishes to know, is the age to which they may be kept and still be sown with the probability of their germinating. Various tables of this kind have been published, the English and French authors differing widely. Of those mentioned by our correspondent, onion and parsnip are only safe for one year; carrot and sage for two years; cabbage and turnip for four years; beet, squash, and cucumber, from five to ten years.

Green Sand Marl.—Chas. L. Smith, Rahway. Marl may be applied to grass lands with benefit in quantities of from one to five tons, or even more, per acre. One ton or thereabouts is generally applied annually for three or four years in succession, when its effects become less apparent, a dressing of lime is found to restore the fertility. It is best to haul the marl during winter and deposit it in heaps, and let it be exposed to the atmosphere until spring, when it is spread. We lately saw a field that had been dressed with one ton of marl per acre three years ago; the good effects were abundantly visible in a heavy growth of clover, while on undressed land, adjoining, the clover was decidedly poor. A shovelful put into the hill in planting potatoes is found to be very beneficial.

Pollen.—"J. P. S.," Springfield, Mo. The package of yellow dust sent is the pollen from the flowers of some pine; showers of this pollen often fall, and to the ignorant and superstitious they are the cause of much fear, many imagining that it is sulphur, and that it is the forerunner of some terrible calamity.

Foul in the Foot.—A Subscriber, Clifford, Pa., wants a cure for foul in the feet of cows. This disease is most often caused by uncleanliness. In such cases, cleanliness will produce a cure, assisted by an astringent lotion or ointment. Wash perfectly clean with carbolic soap and water, and especially between the claws of the hoof. Apply an ointment of lard four parts, sulphate of iron and sulphur, finely ground, one part each; smear the raw or suppurating parts with it, and keep the cows in a clean, dry stable. If the cows are out of health, give half a pound of Glauber salts and one ounce of sulphur afterwards, daily for a week. The sulphur may be administered with some salt.

Lime on Oat Stubble.—I. G. Barger, Clearfield Co., Pa., would like to know how to apply lime to oat stubble which is to be plowed for wheat, and the proper quantity. Lime must be kept near the surface, therefore it must not be plowed in. When the last plowing is finished, spread the lime on the plowed ground and harrow it in. Fifty bushels per acre is the usual quantity. It must be properly slaked, so that it is in a fine state of division, or its full value will not be secured. To slake it, put it in small heaps in the field where it is to be used, and two showers of rain will do the business.

To Kill Milk-Weed.—W. G. Mathes, Okaman, Minn., asks how to destroy milk-weed. This is a difficult weed to kill in some places, in others it does not seem to be troublesome. The main trouble lies in the roots, which are long and penetrate deeply. It can not be eradicated without labor and patience. If it is in large patches, we would mow it often through the summer, and plow the ground in the fall, carefully picking up the pieces of root brought up by the plow or harrow. If in small patches, we would dig out the roots with the spade. If prevented from seeding it will not spread, but if the seeds are allowed to ripen, they will scatter widely.

How to get Land into Grass.—"B. D. C.," Baltimore Co., Md., has five acres of land which he wants to seed to grass, part for a lawn, and the remainder for feed and hay for a horse and cow. The land should be plowed and harrowed fine, with plenty of manure well incorporated; the part reserved for a lawn should be leveled, made smooth, and sown with a mixture of grass seeds—for instance, one bushel of red-top, four quarts of blue-grass, with a little white clover, say two or three pounds per acre. For mowing land nothing is better than six quarts of timothy and a peck of clover. If the land is inclined to be wet, replace three quarts of the timothy with a peck of red-top.

Thrashing Buckwheat.—Harvesting buckwheat is subject to so many accidents, and must necessarily be done at so short a notice, that it is valuable to know any plan by which it may be readily and quickly performed. Where it must be thrashed by hand, a floor may be prepared in the field by scraping and sweeping a piece of ground, or laying down sheets. Lay over this a bed of rails an inch or two apart, raised from the ground sufficiently to make room for the grain when it is thrashed. On these rails throw the straw as it is brought from the stooks, and thrash out the grain, which falls through the openings between the rails. The straw can thus be removed and separated from the grain very quickly. When all is thrashed, remove the rails, and the grain may be cleaned on the ground if desired, without moving it to the barn. It is absolutely necessary to clean buckwheat as soon as thrashed, or the chaff, being damp, will heat and spoil the grain in a few hours.

Carrots and Onions on Sandy Land.—George Cassels, Saratoga Co., N. Y., has four acres of poor, sandy loam, but he has plenty of green manure. He asks how to manage so as to put onions and carrots in next year. The green manure must be rotted, by piling and turning several times, until it is reduced to a fine state. Early in spring the land should be plowed deeply, the manure spread as abundantly as possible—25 two-horse loads per acre would not overdo it—and the land cross-plowed and harrowed. Another plowing would be a benefit, when the ground may be harrowed, the seed sowed, and a rolling given, which will compact the soil and secure germination.

Corn-Husking Machine.—J. T. Robertson, McLaughlin's Store, Pa., asks if there has been a machine invented that will husk corn and do it right.—A husking machine is advertised in the *Agriculturist* of this month, which we have seen in operation; if under the test of actual work in the field it acts as well as we have seen it in the manufacturer's hands, we should say it is a valuable machine.

Thomas' Smoothing Harrow.—I. A. Rogers asks what we know of Thomas' smoothing harrow, and how it will harrow corn.—It is doubtless a valuable implement for finishing the surface of land laid down to grass—when free from stone. It does not work well on stony land. We have successfully used it to harrow wheat in the spring, but our corn was badly injured by it. Others have used it satisfactorily.

Farm Gates.—A. C. Drury, Copper Creek, Ill., asks if there is a patent on the common sliding-gate. There is a patent on the rollers on which it works. The form of gate and the sliding movement having been in common use for many years back, we should say, without knowing positively, would not be patentable. It would be safer, however, to be certain of this before using it, by writing to the Patent Office, Washington.

Feeding Fodder Corn.—Chas. Strange, Grass Valley, Pa., asks how fodder corn should be fed, whether green or wilted. He says his grandfather, when he wanted to dry up a cow, used to put her in a lot and feed her all the green stalks she would eat, and did not milk her; in a few days she would be dry. If this is correct, it shows that we nowadays have improved on old-fashioned modes, for we feed green corn fodder and get more milk. There is a difference in opinion among dairy men as to the relative value of wilted and fresh fodder, but so far as the experience of the writer goes in feeding, and in our conversations with dairy men, we have learned that it is best to feed it when wilted by some hours' exposure to the sun. What is cut in the morning is fed at night, and the morning's feed is cut in the evening. The cows eat it with more relish, probably for the reason that fermentation of the juices has occurred to some extent.

Raising Little Pigs by Hand.—"W. H. B.," Fremont, O., writes: "I wish to inquire of you, or some of the many readers of the *American Agriculturist*, how to raise little pigs taken from the sow, when only a few hours old. I have a fine sow that has bad luck raising her pigs, and I have tried to do it for her by feeding the pigs cow's milk, from one to two tablespoonfuls every hour, using for one lot the milk of a fresh cow; for another lot that of a cow not fresh. But I failed in both cases." We should be glad to hear from our readers. Except in the case of valuable thoroughbreds, it will not pay to raise pigs by hand.

Green Fly on the Quince.—"H. B. H." Use strong tobacco water, either by syringing or bending down the shoots and dipping them.

Butter Making.—Mrs. N. J. Fisk, of Minnesota, sends the following short statement of her process of butter making: "I first rinse the pans with cold water, then pour boiling water in them and let them scald about five minutes, then pour out the water and turn up the pans to dry. Let the milk stand 24 hours, and then skim and set the cream in a cool place. Churn every other day, and keep the churn sweet and clean. Never let sour milk stand in a wooden churn. Rinse the butter well, salt it, and stand it away until the next day; then work it well, until no more brine can be got from it. Work fast, and you need not be afraid of its being oily." The directions are good for such short ones, but we would add: *Always use your brains.* Good butter can not be made in a variable climate by any fixed rule. Sometimes

milk should stand only 12 hours, and sometimes it will take 36 hours for the cream all to rise. If the salt is well worked in, four or five hours is as good as all night for the collection of the brine. In working the butter over the second time, you may be fast or slow, according to the temperature. In cool weather speed is of no advantage. "Wiping" or "sopping" the butter with a damp cloth is a good way to get the moisture out. Never let sour milk stand (unnecessarily) in *any* dairy vessel, and never let *any thing* stand in a wooden churn—except sunshine and fresh air.

Sandy Uplands in N. W. Indiana.—Can they be farmed profitably? asks E. Y. T., Richmond, Indiana.—We have no doubt of it. Within sixty miles of Chicago, on direct railroad, the proprietors of such lands, who live by hunting and fishing, do it from choice, not from necessity. Such lands will, when cleared, grow excellent clover, and that is the key to all other crops. Around Chicago there is a great amount of such land, and occasionally one sees a good farm with flourishing surroundings in the midst of it. The adage, "There is more in the man than there is in the land," will apply here with force. If that land, unpromising as it now looks to the traveler passing through it, is managed well, its favorable locality will help it amazingly. Sweet potatoes, round potatoes, rye, clover, corn, and the dairy should be specialties. And we do not doubt that lime could be procured there cheap enough to give a dressing once in five years. Such lands in other localities flourish abundantly, but not without proper management and manure

Putty and Paint.—However much these two articles may be used to hide deficiencies and cover up faults by dishonest tradesmen, in the farmer's hands they may be made to do excellent service. Possibly the wagon, plows, and harrows that have been in active employment during the summer, have had their seams or cracks opened by the sun's heat. Now is the time to stop those cracks or seams with putty and a touch of paint, before the fall rains soak in and commence to rot the wood. Repeated swelling and shrinking do serious injury to all wooden implements, and now, while they are well shrunk, is the time to look after them and prevent the swelling which will occur if damp or wet is allowed to penetrate. Forks, shovels, axes, and all tools with wooden handles, should be rubbed with linseed oil while dry. They will have their elasticity preserved, and their durability and appearance improved thereby.

Care of Harness.—During the busy season harness is often neglected, and for want of cleaning becomes coated with dust, which causes it to dry and become cracked. It is then on the road to ruin. To save it, it should be taken apart, every buckle should be unloosed, and it should be thoroughly cleansed with warm water and soap. If a thorough sponging does not free it from the glutinous coating derived from former greasings with improper materials, a weak lye of wood-ashes, or a solution of borax or soda, may be used, until the old grease is all removed. Then wipe the surface, and while the harness is still damp, coat it with sweet-oil until no more is absorbed. The oil will displace the water, thoroughly penetrating the substance of the leather. It will thus be kept pliable. Harness should not be oiled when it is dusty or unclean; always wash it previously, as above directed. For fine harness an excellent dressing is made with 8 oz. beeswax melted, into which is stirred 2 oz. ivory black, 1 oz. Prussian blue, ground in oil, 1 oz. oil of turpentine, and ¼ oz. of copal varnish. This is made into balls. It should be applied with a stiff brush and the harness polished with a soft cloth. No hair or dirt will stick to this, and if expense is no object, working harness may be made to look well with a coat of it.

Garget and Bitter Cream.—"L. T. W.," Minn., has some cows which give stringy milk from one teat, which she calls dry garget. Also has occasionally a pan of milk in which the cream is bitter, and asks for remedies. Cows often suffer from inflamed udder when they come in, and if the calf is not allowed to suck or it is not reduced by other means, it results in "caked bag," or garget. Tumors often occur in consequence, which remain for a considerable period, and from time to time discharge their contents with the milk in the shape of a thick, glutinous matter. The remedy is to cause the substance of the tumor to be absorbed by the use of iodine applied to the udder, assisted by friction. The common iodine ointment of the druggist may be used, rubbed in around the diseased teat with gentle pressure. In such cases the milk from that teat should not be used. The bitter cream may arise from weeds eaten by the cow, or an abnormal state of the liver resulting in an excess of bile; or, what is most probable, the pan may not have been perfectly cleaned from sour milk, and the milk and cream may have soured prematurely; without knowing more than the bare fact communicated, it is impossible to give either a definite cause or remedy.

Curing Corn Fodder.—Mr. A. O. Bayley, Derby, Vt., says: "We fully agree with Mr. Foster (*Agriculturist* for May) about the value of fodder-corn, especially as a milk-producing feed, either in a green or dry state, notwithstanding Dr. George B. Loring pronounces it to be the 'meanest feed that can be given a cow.' We would, however, for winter use, cut and cure it before it has attained its full growth; when in blossom is probably the best time. Green-cut corn-fodder is as much superior to that which is ripe as early cut hay is to that which has matured its seed. Our practice has been to sow in drills, and of late years not more than ten or twelve kernels to the foot. I find from experience that cattle will eat fodder grown from this rate of seeding with better relish than the small and unnatural growth obtained from heavy seeding. I do not think that corn grown at the rate of thirty or forty plants to the foot contains so large amount of sweet and nutritious juices, in proportion to its weight, as that grown from thin seeding. The principal difficulty lies in the curing; a corn-stalk as green as I cut it is so limber it is next to impossible to make a stock stand that is small enough to cure well—it will tumble down when there does not seem to be the slightest occasion for it. Last year we tried several expedients, and at last hit upon a plan that worked with complete success: two crotched stakes were driven into the ground at a convenient distance apart; a pole was laid crosswise three feet from the ground; small bundles were placed on each side of this support, and bound together two and two, one on each side of the pole. There was some work in this, but it was the best of some half-dozen different arrangements. This was nicely cured, and made excellent winter feed, cattle eating it as readily as the best of hay. If we had let the corn stand until ripe we should not have had so much difficulty about making the stocks stand."

South Carolina Phosphate.—I. H. Satterthwait, of Aiken, S. C., writes: "You know of the extensive deposits of petrified bones of animals in the neighborhood of Charleston, S. C. These bones, when ground and made soluble, are excellent manure for our lands, but the price is so high when manipulated, that we farmers can not afford to buy it. Neither can we afford to farm these poor lands without manure. Consequently, we should know how to manipulate for ourselves, and I appeal to you for the desired information, hoping I am not asking too much. We can purchase the ground bone at the factory for from $12 to $15 per ton. When made soluble with an equal weight of sulphuric acid, they charge $40 per ton. Can we not add the acid ourselves? and will it pay?"—We have no doubt you could buy the ground bone and the sulphuric acid and make the soluble manure on your farm somewhat more cheaply than you could buy it, but the saving would not, probably, be so great as you imagine, though it would be worth while if the quantity needed were enough to cover the outlay for the necessary fixtures. The profit will depend on the cost of the materials and the labor required. If a ton of ground bone costs $15, and a ton of acid costs (including the use of carboys, freight, and handling) $50, the two tons would cost (for material) $65, leaving a margin of $7.50 per ton, to cover the cost of manipulation. What the material actually would cost, we do not know. It would be worth something to *know* you have the genuine article, but we do not hear that the manufacturers of South Carolina superphosphates are making undue profits by their business, and we would recommend farmers to figure carefully before they commence making their own superphosphate. Nothing can be more true than our correspondent's remark that it will not pay to farm any poor lands without manure.

Plantation Cows.

We have received the following letter from an esteemed correspondent in South Carolina:

"I would like to get some information about stabling cows, which I do not find in the agricultural books within my reach, and would be glad of instruction on the following points:

"1. When fastened with halter, how many feet of front is allowed each animal? 2. How much of a partition is there between the different cows? I can not recollect whether those I have seen fastened were secured with a collar around the neck, or whether the chain was around the horns. 3. In either case, how long should the halter-chain be? 4. Are common trace-chains used, or chains made especially for the purpose? The halter-chain I believe works with a ring upon an iron rod, giving the cow's head more play up and down. 5. How high from the ground should this rod be? The most puzzling question to my mind is how a common herd of plantation cattle are to be taught to walk up and be haltered of an afternoon. As the sole object in stabling them is to save the manure under shelter, I should much prefer dispensing with the halters, if there was any way to prevent their hooking one another under a reasonable-sized shelter. Dairymen, I suppose, have constantly to train new cows to 'come up to the rack,' and possibly I may get a hint from their experience. I can't agree with your esteemed contributor, 'Walks and Talks,' about making manure in an uncovered lot, and want to improve on our common plan of penning cattle; but as mild as our winters are and common as the cattle are, more for the sake of the manure than of the cattle."

1. For cows of ordinary size, 3 feet is a sufficient width to allow to each. 2. It is quite as well to have no partitions at all, only the posts to which the animals are fastened; these will separate them sufficiently. 3. In fastening to posts the chain has only length enough to go around the cow's neck—loosely—carrying a large ring that plays up and down on the post. 4. The chains are made for the purpose. They are not expensive. 5. If an iron rod is used in the place of the post, it should come to within about a foot of the ground. As the cow stands up to the rack, in a natural position, the post (say 3 inches in diameter, and of strong wood) should be close to the left side of her neck—a little back of the head. Each post carries its chain by a large ring or clamp that plays easily up and down upon it. The chain has several rings at one end (to regulate the length) and a cross-piece at the other. The tying is a very simple matter, especially if a nail be driven, a little out of the cow's reach, on which to hang the ring end of the chain so that it can be reached without stooping.

Cattle will soon learn to come to their stalls for any regular reward—either meal, bran, salt, or hay—and they should be fed at once on coming in. The only way to get on without tying would be to put the cattle in stanchions, which for the case in question would answer very well.

Bee Notes for August.—*By M. Quinby.*

The moth will continue or increase its depredations, and the price of exemption, for weak colonies, is perpetual vigilance. Continue to place sweetened water and vinegar about the hives at night. Any diseased stocks that have been neglected, may be driven out now. What they do will be good for another year, if not available this. Where buckwheat is abundant, strong colonies, in good seasons, will store a plenty of surplus, and boxes should be given them with reference to it. Boxes of clover-honey should be removed early this month, even if not quite full, as a little of that from buckwheat on the outside materially affects the price. Weak stocks will sometimes fill a box half full, more or less, and if honey fails somewhat, they will remove every particle of it to the combs below, while strong swarms may be gradually filling boxes. Watch such closely, and take off the boxes if necessary. As the honey in such boxes is free from bee-bread, it is nice for the table even if unsealed, and the supply of honey being limited at this time, it might not be safe to risk putting the boxes on another hive for filling. Swarms which come this month are worth but little, and the bees are needed in the old stocks. Should any swarm now issue, and should there be a queenless colony in the apiary, divide the swarm, give half the bees with the queen to the queenless one, and return the rest to the hive whence they issued. If not needed in this way, take away the queen and put the bees back in the old hive. They will not be likely to come out again so late in the season. Should a streak of white, powder-like substance be seen on the surface of the combs of box-honey that has been kept through the hot weather, it is a sign that a web will soon appear, and that a worm is there, though he does not appear. Put the honey-box in a close box, and smoke with brimstone, but not so strong as to discolor the combs. In rearing Italians, where they are surrounded by natives, it is difficult to keep them pure, as the queen will sometimes meet the drone three miles away. To obviate this, it is well to keep drones as late as October, at which time natives are destroyed. To do this, select now a colony of the best. Take away the queen, and eight days afterwards destroy all the queen cells. In such a case drones are not destroyed, unless destitute of stores. You may increase the number by introducing two or three drone-combs containing sealed brood. The same hive can be used to winter a colony if it has plenty of honey. The bees from some light colony may be introduced in November or December. Allow me to repeat here, that persons wishing to make the most of their bees *must* discard the box-hive, and educate themselves to use movable combs in some form. *Study the subject.* And I would strongly advise the use of the mel-extractor. It is proved that two or three pounds of extracted honey can be got where one can be obtained in a

box. Italians are disposed to fill their combs too full of honey in August, leaving too little room for brood. By using the mel-extractor room is given them, and consequently there will be plenty of young bees for winter.

Wool-Bearing Animals.

At the International Exhibition now open in London, there is a collection of wool-bearing animals brought together for the purpose of showing the origin of the material from which the fabrics exhibited are made. We give an engraving representing these animals upon the first page of this paper. With the exception of the Alpacas, which belong to Lady Coutts, the animals are from the Gardens of the London Zoölogical Society. The animals placed highest in the picture are Moufflons, from the mountains of Greece, Corsica, etc. Those shown here are females, the males having much larger horns. The Mouffion is a very strong and agile animal, and is interesting as being, in the opinion of some naturalists, the original of our common sheep. Next, below the Moufflons, is a fine specimen of the Cashmere goat, which furnishes the raw material for the most costly shawls. At the left of the Moufflons are two Merino Rams, which do not call for especial comment, and at the left of these again, a Huanaco, or Guanaco, as it is sometimes written, and lower down are the nearly related Llama and Alpacas. These three varieties or species of animals, aside from their furnishing wool, are interesting as having long been under a rude domestication. When South America was discovered by the Spaniards, the Llamas and Alpacas were found in use by the natives as beasts of burden, and it is stated that in the time of the Incas, it was the custom to have large hunts and drive in the wild herds, when the animals were shorn, and the old and imperfect ones were killed, in order to improve the race. The Llama and Alpaca are not known in the wild state, and those who have investigated the matter consider the Llama the descendant of the Huanaco, and the Alpaca as resulting from the Vicugna, an exceedingly wild animal found in the elevated mountains of Bolivia and Chili. The animal in the lower left-hand corner is the Fat-tailed sheep, which was fully described in June last, on page 213.

Pasturing Meadows, or Young Clover.

For want of sufficient pasture, cattle and horses are often turned into the mown meadows, or stubbles that have been seeded with clover. This is, to say the least, injudicious. Generally dry weather occurs after harvest, during which the clover and grass have a struggle to maintain their existence, the young clover plants especially suffering from the heat and drouth. Possibly for some weeks the principal dependence of the meadows for moisture is the nightly dews. If the leaves are allowed to be eaten off, this mode of supply is arrested, by depriving the roots of the shade which they would have afforded. Only a weak growth can then be made, many plants will be totally destroyed, and when the fall rains occur, followed by nightly frosts, the unsheltered roots are thrown out by thousands. A promising piece of young clover may thus be completely ruined and the next year's supply of hay be seriously curtailed. The small quantity of feed thus gained is dearly purchased. The life of the meadows is consumed and their existence threatened. We are aware of the great temptation there is to turn stock on to the aftermath and stubbles, but, unless in the very rare cases where the soil is rich and the growth is too heavy to be eaten nearly bare, it would be a great saving of money in the end, to hire pasture, buy feed, or sell the surplus stock which can not otherwise be fed at home On many farms, had this course been adopted for one season, the resources for feeding in after years would have been doubled; but by carrying too much stock on the fields during the fall months, they were eaten off too closely to stand the winter, and were too seriously injured to fully recover. It is becoming more apparent each year, that more stock must be fed on Eastern farms, nay, on many Western farms too, or their fertility can not be maintained; but it is bad policy to keep too many at the commencement, before the means of feeding have become equal to the demand. It is something like a man living upon his capital, instead of upon the interest of it each year; in the one case, he becomes poorer by mere ill-judged use of his means, which, by proper husbanding, in the other case would keep him by its income, and itself remain intact.

It is a question worth consideration, whether it would not be wise to largely reduce pasturing stock; whether money could not be made by selling off in the spring the bulk of the stock usually pastured, and mowing, or otherwise using the land to produce feed for keeping stock during the winter, which should be purchased in the fall, by which means more manure would be made, the difference in the values of stock at these different seasons saved, and all temptation to pasture mowing lands, or young grass or clover fields, removed.

Tim Bunker on Paying Crops.

"Ye see, Squire, taters don't pay, blamed if they du. Ye see, I've been raisin' 'em nigh on to forty years, and I don't git ahead a bit. When taters are high, ye see, I ha'n't got any; and when I've got 'em, which seldom happens, they don't bring any thing if ye sell 'em. I'm gettin' sick of raisin' things that don't pay."

"How do you know they don't pay?" says I. "Do you keep any account of expenses? Do you know what it costs to plow, to manure, to plant, to hoe, to dig, and to store? Do you know what the crop has cost when you have put it down where you get your money for it?"

"Well, no, I don't keep an 'count in ritin', but kind o' keep the run on't in my head, and what a feller knows, he knows jest as well as if it was ritten. Ef I raise taters forty years and don't git ahead, it is pretty sartin 'taint a payin' business. No amount of ritin' would make it any plainer that they cost more than they come to."

"Well, neighbor Frink, has any thing paid on your farm? You haven't got ahead much."

"You see, Squire, I'm here, gettin' pretty well along in life; the farm is pretty much paid for, and the stock, and the clothes I stan' in. Ef suthin' hadn't paid, I shouldn't av been here, for I hadn't a red cent to begin with."

Thousands of people are just in Jake Frink's state of mind. They don't know what pays on the farm, and what brings them into debt. They keep no debt and credit with particular fields, or particular crops, or kinds of stock. They have a very indefinite notion that some things pay better than others, but they can not hole the fox, big or little, that eats up the grapes and destroys their profits. They keep on raising a great variety of things, some at a profit and some at a loss, on the whole getting a living, and that is about all. Now, I know just about what Jake's potatoes cost him, and I will figure up a little for his benefit and the public's: Plowing 1 acre, two dollars; 10 bushels seed at eighty cents, eight dollars; planting, three dollars; cultivating twice, six dollars; digging and storing, six dollars; 8 cords of manure, twenty-four dollars—forty-nine dollars. The crop is 50 bushels of potatoes, of which 10 are small; 40 bushels, at eighty cents, are thirty-two dollars, and the small potatoes are worth five dollars, total thirty-seven dollars; which, taken from forty-nine dollars, leaves twelve dollars as the loss on the operation. But if we take off one half from the cost of the manure as left in the land, the account stands even and Jake has his potatoes for his labor. They are all eaten in the family, and they cost in labor eighty cents a bushel. This kind of potato-raising does not pay much, as any one can see, and if the question is between raising this crop in this way and abandoning it, we had better abandon it at once; the farmer makes nothing, and the land is not improved. As most Eastern farmers raise corn, it pays no better; the crop costs more than the price of Western corn brought a thousand miles, and put down at their doors.

"Lost twelve dollars, did ye say, Squire?" asked Jake, when I showed him the figures. "I guess it's true as preachin'. Ye see, every tater in that swale rotted. I've been gwine to drain it ever sense you knocked the bottom out of that hoss-pond lot, but somehow I didn't git up to it. Ef them had been sound, I should have had 100 bushels strong. But that's jest my luck. When taters are high I ha'n't none to sell."

I got into the way of ciphering on my crops quite early, and I do believe the tallow candles and the slate and pencils that I have spent in this business, have been about as good a crop as I ever raised in Hookertown. It don't take a great while for a common-sense farmer to tell whether a crop pays or not. I raised last year a crop of rye, on a little less than three acres of land. The cost was: Plowing, six dollars; seed, three dollars; harrowing, two dollars; harvesting, three dollars; threshing, four dollars and fifty cents; total, eighteen dollars and fifty cents. Sales, forty-five bushels of rye, forty-five dollars; straw, forty-eight dollars and fifty cents; total, ninety-three dollars and fifty cents. Deduct eighteen dollars and fifty cents, cost of crop, and we have seventy five dollars as the profit. This is about twenty-five dollars an acre profit. Now, if I can get 15 bushels of rye to the acre without manure, and can add ten bushels to the yield by putting on five dollars' worth of bone-dust, or fish guano, to the acre, I can afford to buy the manure. The bone-dust will not only help the present crop, but will add to the yield of grass for several years to come. It is a safe business operation for me to enlarge the rye crop on the old pasture. I can kill the briers, sweet-fern, bay-berries, and other brush, and increase the grass crop and get paid for the job. If I take up twenty acres, and get only twenty bushels to the acre, I shall have 400 bushels of rye, worth as many dollars to sell, or to consume upon the farm; and the straw will be worth as much as the grain, at the present market prices. It can be done with the present working force of the farm, and eight hundred dollars is an item worth looking at in the year's receipts of any small farm. Rye pays in Hookertown; it might not pay where the grain was worth only fifty cents a bushel, and the straw was considered worthless.

Then there is another little crop that I have found out pays better than rye. In some districts there is a great outcry against sheep, and the farmers sell them for a song. Last February I bought ten ewes of a mongrel sort, having some South-Down blood in them. They brought ten lambs, and the sheep sheared thirty pounds of wool. My principal object in getting them was to help keep down the brush and briers in an old pasture. They ate before they went to pasture about half a ton of good hay. Their pasturing I do not count, for it has not interfered with the other stock, and almost any pasture improves where well-fed sheep graze. The cost of the sheep was forty dollars; feed, ten dollars and fifty cents. The lambs average six dollars each, sixty dollars, and the wool sold for fifteen dollars—seventy-five dollars; and the ten sheep are in better condition than when they were purchased. Here, then, is a return of seventy-five dollars from an investment of fifty dollars. The labor of taking care of them I think was fully paid for in the manure they dropped. The grubbing they do among the briers will be clear gain. One of the lambs weighed 31 lbs., and sold for twenty cents a pound dressed, and the pelt sold for fifty cents. A business that pays as well as this ought to be extended. Now, suppose I go a little out of Hookertown, where the people think sheep a drug, and buy in the fall a hundred ewes at, say, two dollars apiece—two hundred dollars; add two hundred dollars more for cost of wintering—four hundred dollars. If I put a Cotswold ram with them in November I secure lambs that will weigh 40 lbs. each and average eight dollars a piece by next July. I shall then have with good care, which is the

secret of good luck, 100 lambs sold for eight hundred dollars; and 300 lbs. of wool for one hundred and fifty dollars, or nine hundred and fifty dollars as the gross return for my investment of four hundred dollars. There can't be much discount on this ciphering, for the calculation is based on the actual results attained this year. You see it makes a great deal of difference whether you sell a sheep as lamb or as mutton. If the animal is worth six dollars at four months old, and only four at eighteen months old, why should I keep it? In the one case, I make fifty per cent profit; in the other I am in Jake Frink's quandary about the thing's paying at all. It is a clear case that keeping sheep pays in Hookertown. I want the old pasture grubbed at cheap rates. I have a good market for lambs right at my door. My neighbors like lamb with their green peas, and are ready to take all I can raise. If the butcher's price don't suit me, I can slaughter the animals myself, undersell him in market, and make money by it. He knows that, and has his choice, just as I have mine. The competition, if it comes to that, is rather a benefit to the public, as it tends to cheapen food. There is a good market for wool and for pelts. I have plenty of old pasture not worth over twenty dollars an acre. It might not pay if the land were worth two hundred dollars an acre, if lamb was not in demand, and if nobody wanted the wool, and if the Whitecakers did not keep sheep that they were willing to sell, after shearing, at two dollars a head. We must cipher more if we want to get out of Jake Frink's quandary, and find out what crops pay.

Hookertown, Conn., July 15, 1871. } Yours to command, TIMOTHY BUNKER, Esq.

Ogden Farm Papers.—No. 20.

I intimated in my last, that I should have something to say in the future about the newly recommended method of setting milk for cream in very deep vessels. The result is so manifest, that it does not seem worth while to wait longer, before stating it. Taking it all in all, I regard it as the most important improvement in butter-making, that has come up in my time. I have just completed the plans and specifications for building an elaborate milk-house for a client in Massachusetts, with water-piping for shelves, having a flow of warm water through them in winter, and cold water in summer; and I have advised that the plan be abandoned, and that a much cheaper one be adopted, suitable for the new, or "Swedish," system. To begin at the beginning, I will refer the reader to an article on "Swedish Dairy Farming," on pages 178 and 179 (May No., 1871). This was the first intimation I had that such a system was practicable. I was brought up on the shallow-pan system, and rarely set my milk more than an inch deep. Having confidence in the source from which I obtained the information given in the above-named article, I had a half-dozen cans made of three sheets of 12-inch by 17 1/2-inch tin, measuring, when finished, about 17 inches deep, and 11 1/2 inches in diameter. I then moved into my summer milk-room (underground) an unused horse-trough, about 18 inches deep, and large enough to hold five of the cans. Three cans hold most of the milk of each milking, but we are obliged to set some of the milk in shallow pans yet, and this affords an opportunity for comparison. In the morning we set three of the cans, filled to within an inch of the top, in the trough. At evening, only two cans can be put in, the third being put on the floor outside of the trough. My self-regulating windmill, which works in the lightest winds and is rarely still, keeps an almost constant flow of water, from a deep well, nearly a quarter of a mile away, pouring into the trough, and flowing out at its other end. This keeps the temperature at about 58° or 59°. I have not ice enough to keep it as cold as Mr. Swartz does his, and I doubt whether that is necessary. Neither do I skim until the milk has stood nearly 24 hours (just before the second milking), and I have not even tried to see whether it would do as well to skim at the end of 12 hours. At five o'clock on the second morning, the three cans of the previous morning are skimmed; the two of the evening before are moved up to the head of the trough, and the third, which has stood outside, is put in the water. Then two of the morning cans are put in, and the third is set outside. Thus, at each milking, two cans are put at once in the water, and one is left outside for 12 hours, and is then taken inside. The following are the results:

1. In ordinary weather, the milk that is set in the old-fashioned pans yields all its cream, but turns a little sour within the 24 hours.

2. The two cans that are put at once in the water, remain entirely sweet, and they yield, as nearly as I can judge without accurate measurement, at least as much cream as we would get from the same amount of milk in shallow pans—possibly a little more.

3. The milk in the can that passes its first 12 hours out of the water—probably because it cools off much more slowly—gets more sour than the milk in the shallow pans, turning quite thick. I think it thickens before it gives up all its cream, as we seem to get rather less cream from this can than from the other two.

4. We make quite as much butter from a given quantity of milk as we did when using pans.

5. The skimming is done with a dipper, and is done much more expeditiously than under the old system, occupying the same time for one can that it did for one pan.

6. We use 6 cans in place of from 90 to 110 pans.

7. The cream is of a uniform consistency, and much more liquid than when so much of its surface is exposed to the air. The cream on a pan of Jersey milk that has stood 24 hours is so tough as to seem almost leathery, and can be taken off in a mass—almost rolled off. The cream on one of my cans—two inches thick—is liquid, and can not be taken up with a punctured strainer. I am thus far disposed to attribute to this the fact that the "marbling" of the color of the butter, which we scarcely ever avoided before, has entirely disappeared under the new method; the "O. F." butter being now a pure, solid gold color throughout. It is not unlikely that the exposure of so much of the cream to the air affected the color of parts of the butter. Then, again, the cream now mixes thoroughly, and at once, in the cream-pail, while that which was taken from the old pans was always more or less clotted. One of the old-fashioned preventives of "marbling" was to stir the cream thoroughly together whenever a new skimming was added. Hitherto, however thoroughly this was done, the cream was always quite lumpy when it was turned into the churn; it now pours like a smooth syrup.

8. This can not be called a *result;* it is, as yet, only a suggestion, and one that it will be difficult to prove. My butter, from the same cows and the same food, has never been so good as it now is. May not the present improved quality be due in part to the fact that so little of the cream is exposed to the air? Does not such exposure allow an oxidation or evaporation, or other action that destroys or wastes the aroma?

A month is not long to study the operation of any improvement, but I have studied this one closely, and I am satisfied that my conclusion, as described under the foregoing heads, is a sound one, and I shall do away with all of my old utensils, have a permanent trough made large enough to hold the necessary cans for all my milk, and follow the example of Mr. Swartz, until I find some better way.

I advise all who are so situated that they can keep up a supply of cold water, either with ice or by the aid of naturally or artificially running spring water, and who care for the least work and best results, to do likewise.

Concerning the farm in general, there is not much to say. June is a month of full promise and little result. Every thing looks well, better than I had hoped; and if it will only stop raining long enough to let me put in my turnips by the end of the month, I shall have nothing to complain of. The young stock comes on well; of my eighteen thorough-bred calves thus far dropped, nine are heifers (good ones), and the bull-calves are selling much more readily now than they did a few years ago. In fact, the value of the Jersey blood to cross with the common cows of any butter-making farm, is becoming better understood every year, and where we used to have to sell our bull-calves to the butcher, we now get from twenty-five to fifty dollars each for them for cross-breeding, keeping the best to sell as yearlings to the breeders of herd-book animals, at higher prices.

"Dallas" is slowly making his way to prosperity. When I brought him here three years ago, it was the fashion to laugh at me for charging twenty-five dollars for the services of a stallion, when from three to five dollars was the price asked for those already here. It was of no use to say that "Dallas" was a thorough-bred horse, and had the best blood of the English Stud-book in his veins; that his colts from good mares ought to be worth twice as much as those of any cold-blooded stallion. "So-and-so has got a pretty likely looking horse, I guess he is good enough for me;" and with a very knowing, smart-looking sneer, Mr. Neighbor would betake himself to the cheaper shop. The next year I had two colts by him, the next four, and this year two, and more to come. "By their fruits shall ye know them." It is now confessed that Dallas's colts are "extra good," and the older they are, the more they show their superiority. And, naturally, the more they show their superiority, the more people send their mares to their sire, until he is now an object of respect. As I shall drive a pair of his three-year-olds next year, I think he is bound to become popular in his old age (he is eighteen years old now, and seems good for ten years to come). One thing is certain: There will be more good, sound, well-bred horses on this island for the next twenty years for Dallas's having come here; and some day I shall be thanked, as well as paid, for having brought him here.

Will you, Mr. Editor, excuse me if I kick out of the traces a little, and protest mildly against the tone of your article in the July number, entitled "How to get Thorough-bred Stock"? What I object to is rather your omission than your direct expression. Your correspondent

complains that when he wrote to known breeders for the price of a bull, he was charged a higher price than he could afford to pay ($400 to $500). I do not think you do full justice to the breeders in your reply. Those who are known to be first-rate breeders of Shorthorns are few. They have paid thousands for their foundation stock, where they ask hundreds for the choicest progeny; they have taken enormous risks, and they have but a limited market. The price that common farmers, with limited capital, think they can afford to pay, would not remunerate them, and no one has a right to get vexed that they should ask all they think their stock will command. I never knew a breeder of thorough-bred stock to make a large fortune, and this fact alone shows that what you call "fancy" prices are none too high, in view of the capital invested and the hazard incurred. Then, again, what do we mean by "fancy prices"? If the $400 to which your correspondent objects, is fancy, why is not the $200 that you suggest? It is more than the value of an equal weight of common stock, and if the surplus is fancy in one case it must be in another. Where shall we draw the line? There is one safe rule for us all to follow; that is, for each party to a negotiation to fix his own standard of value. If Mr. Smith objects to paying $500 for a calf, Mr. Jones has no right to compel him to pay it, or to get angry because he won't. On the other hand, if Mr. Jones will not sell his calf for less than $500, Mr. Smith has no right to grumble thereanent. Each is a free agent; the one has a right to ask, and the other to pay just what he pleases; if they don't agree, they needn't trade—that is the whole story. For my part, I do not believe at all in the idea of "fancy prices." I stand ready to pay for just such a Jersey bull as I want (if he exists—which is doubtful), several times $500; but I should not be, in any sense, paying a fancy price. Fancy would have nothing to do with it. It would be a purely business transaction, and I should be actuated solely by a desire to add to the value (not for sale only, but for the purposes of my buttery) of every calf that will henceforth be born on the farm. There is no end to the influence of a good bull; every calf he gets carries the impress of his quality in its own person, and transmits it through countless generations. Suppose I were to pay $5,000 for a bull, and should use him for four years on all my thirty cows and heifers, and on all their female progeny.

With only ordinary luck, I would have in all about 150 calves by him, each one of which would cost about $30 more than if from a $500 bull. And this is only the beginning; I should have laid a foundation for future improvement that by judicious selection I could keep up indefinitely, and if I had succeeded in adding on the average five per cent to the dairy value of every calf that would ever be born to any descendant of my present herd, I should have attained a result of priceless value. Of course, I would be a fool to pay $5,000 for a bull no better than I could get for $500, but if I really had a chance to buy the very best bull in existence, I would be a fool not to buy him at any price I could possibly afford to pay, providing I could not get him for less.

The bull is the key-note of the whole tune. If you intend to breed thorough-breds, go the full length of your tether, if you must, to get the the very best. If you only mean to raise butcher's meat, get a thorough-bred of good quality, and at a price you can afford to pay. The better he is, the better for you, but don't growl because you can't buy the best at half-price. I am a breeder of the kind of stock you would call "fancy," but I never bought an animal with any other motive than a desire to make money by it, and though I have both paid and received high prices for my animals, I think their actual value as progenitors of future herds, if rightly estimated *by butter-making capacity alone*, would in every case exceed the price. There is no "fancy" in 225 lbs. of good butter in a year from a small cow.

An Egg Farm.

BY H. H. STODDARD.—*Fourth Article.*

When it is attempted to raise a few eggs and chickens for home use, the form, proportions, and fixtures of the fowl-house are of small consequence, so long as the proprietor has invented something a little different from what has ever been made before, and is satisfied. But business upon a large scale demands buildings that shall conduce in the highest degree to the thrift of their inmates, and to the convenience of the attendant, while the outlay in both material and construction should be the lowest possible. The buildings generally put up cost $2 or $3 for each fowl provided for, while amateurs sometimes expend $5 or more per head for the housing of their poultry. There are three classes of adult fowls necessary under our plan, which we designate breeders, sitters, and layers; and the latter, which are most numerous, are housed at a cost of materials not exceeding 40c. for each bird; estimates being based on hemlock lumber at $23 per thousand. The accommodations for the breeding and sitting stock are necessarily more expensive, and there is, in addition, the cost of coops and fixtures for raising chickens enough to replace two thirds of the adults yearly.

In a practical and economical fowl-house, we expect nothing ornamental nor complicated. There are no ingenious ventilators cheap at $3 each, or patent nests to beguile hens into laying more or bigger eggs, or rat-proof feeding hoppers opening by clock-work, but the utmost simplicity is sought throughout.

The illustration shows upon the right the house used at the stations, for the layers. It is not too large to be moved with convenience, and nothing smaller would accommodate a flock of fifty, the number to be kept at each station, with perches, nests, and sufficient ground room in stormy weather, and at the same time afford hight enough to give a circulation of air over the perches, and a proper pitch of roof. It is 15 ft. long, 8½ ft. wide, and 4½ ft. high at the peak. Let it be noted that any attempt to build so that the attendant may enter, either makes a stooping, slow job of every operation, from year's end to year's end, or if the house is carried high enough to allow standing upright, the weight interferes with moving, and the lumber costs too much. It is as easy to reach into a building designed for the keeper to stand outside, as to reach into a handy cupboard. To give sufficient air, the room is as lofty in proportion to the size of the birds or their breathing capacity, as a stable twenty feet high would be for cattle. It is just about as necessary for the poulterer to have a roof over his head for protection in all weathers while at work, as in the plan the National Poultry Co. carried out at Bromley, Kent, in England, as it is for a farmer to make a shed over his land to defend his complexion from the sun while haying, and the rain while transplanting cabbages. The part of the roof on the south side at A, A, A, and nearly all on the north, consists of hinged doors opening to the right or left, and overlapping when closed, to shed rain. When it is desired to whitewash, throw open all the doors, thus turning the house inside out, take out the perches and nests, all built movable, and there will be no nook or cranny of the woodwork that the brush can not be made to reach with ease, and no lack of elbow-room. This arrangement of doors makes it convenient also to catch fowls upon the perches by night. The doors should shut as snugly as may be in coarse joiner work, and the cracks unavoidably left around them will afford all the ventilation needed in winter, while in summer they may be opened more or less widely, according to the weather. When it is warm, yet wet, they may be partly opened and propped up, and a board put across their edges to shed rain. It is very desirable, under any plan for henneries, to build so that while moderately tight in winter, they may be thrown open on every side in hot weather; for fowls are warmly clad, and suffer much from the heat when in buildings made, as is too frequently the case, only with reference to the cold. The doors which form the north roof project 6 inches at the ridge to keep out rain, as there is no ridge-cap. The two windows in the south roof are glazed greenhouse fashion, that is, with overlapping panes, that snow may slide from them readily as soon as loosened by the warmth inside. They are 2 ft. high and 3 ft. wide, and set 18 inches from the peak of the roof. A strip of tin is fastened over the upper part of the sash, and the sides and bottom of the sash overlap the roof, to be rain-proof. The shutters, B, B, used to darken the building on certain necessary occasions, elsewhere referred to, are hinged to the lower part of the sash, and when opened, as in the illustration, rest upon the roof below the windows. The side sills project at both ends of the building, are beveled runner fashion, and strengthened with iron where holes are bored to attach chains; thus it may be drawn by either end. The sills, which receive the principal strain during moving, should be so well braced as to keep the whole building in shape. The end sills, of 2-inch plank, should be spiked upon the top of the others, flatwise, so as not to touch the ground while moving, and the side-sills, 4 inches square, should be of chestnut or oak, to be as durable as possible, for they rest on the ground during a good part of the year. The spruce rafters, 2 × 3 inches, which answer for studs and rafters both, should be set at such distances apart as will correspond with the width of the doors and windows which are fastened to them. A stout ridge-pole, sawn of a triangular shape, runs the length of the building underneath the rafters, and two sticks are fastened to this ridge-pole, one 5 ft. from each end, and braced upon the center of the end sills to give firmness, for the covering, consisting chiefly of doors, does not strengthen the building, as in ordinary cases, where the covering is nailed to the frame. C C are doors, each 3 ft. × 1 ft., opening outwards and downwards, to give the keeper access to the nests, which are 1 ft. square, and the same in depth, and so contrived that the hens enter them at one side from a passage 6 inches wide and 1 ft. high, boarded at side and top, running the length of the row of nests, and are thus indulged in their liking for privacy while laying. The nests are tight upon the top, the outside door should fit closely, and the opening admitting the fowls to the passage be made so small that the nests will be rather dark. It is found that when nests are

open to view from the main apartment, hens will, in stormy weather, for lack of other employment, sometimes enter them to scratch for food, and thus by chance break eggs and learn to eat them, and acquire the habit of pecking at and devouring eggs as fast as laid. But a darkened nest will deter them from entering, except to lay, for which purpose they prefer a dark, low corner. There is a row of six nests running across the building at each end, making twelve, which will be sufficient, as it will not happen that more than that number out of a flock will need them at once. The passages are made so that they may be taken out with the nests for whitewashing. The end sills, of plank 18 inches wide, serve as a tight floor for the nests and passage. The perches, two in number, are 18 inches apart, and each is 18 inches from the roof, and 2 ft. higher than the sills. Perches should be of $2^1|_2 \times 3^1|_2$-inch sawed stuff, the widest part up, with the upper corners rounded off a very little. When fowls not fully grown roost upon narrow perches, their breast-bones sometimes become deformed. From four to five average-sized fowls will occupy 2 feet of perch. The perches, being each 12 ft. long, will accommodate a flock of fifty, and are to be placed so as not to extend over the part occupied by the nests. The drinking vessel stands upon one of the platforms formed by the nests, and upon these platforms are also shallow boxes containing gravel, pounded charcoal, and a mixture of loam, sand, and oyster-shell lime, made into an easily crumbled mortar. The boxes are 10 inches wide, and, being placed next the end wall, leave a space 8 inches wide upon the platform, for the fowls to stand upon. The drinking pail and gravel boxes are protected by their elevation from the dirt that would otherwise be thrown into them by the fowls when scratching and dusting, and are fronted by slats with openings $6 \times 2^3/_4$ inches between them. An opening is made in the end wall over the pail that is just large enough to admit the spout of a large watering-pot without the sprinkler, to afford the most convenient arrangement for watering. The door, D, 1 ft. wide, opening downwards, is for removing the pail and gravel boxes when desired, and when fastened ajar will be found more convenient for ventilation than the roof doors, when the weather is only moderately warm. Both ends of the building alike are furnished with doors.

During the severest weather, generally about three or three and a half months of the year, this building does not stand with sills upon the ground, but for winter it rests, as in the figure, upon the edges of a box or bin of dimensions corresponding with the center of the sills of the building, made of planks 9 inches wide and 2 thick, like a mortar-bed with no bottom, filled with dry earth. This should be set upon ridges thrown up by the plow, as previously described, and it will be found that, by starting with the earth dry in the fall, it will not absorb moisture from the ground beneath during winter, any faster than it dries away from the surface where the fowls keep it in motion. There need be no cleaning of the house while thus arranged for winter, but about once a month an inch or two of dry earth may be added. There will be no accumulations under the perches if the birds are kept not too profusely supplied with gravel at that season, as they should be to induce them to thoroughly pulverize every portion of the manure and mix it with the dry earth, in search of the gravel which is very frequently voided. There can be no objection to saving labor by inducing the birds to perform the work of scavengers, which will give them salutary exercise, for it is not intended that they shall be deprived of as much gravel as they need, but only forced to use the same many times over. The bin, as it may be called, should be strengthened with braces across the corners, and kept from spreading by the pressure of its contents by strips nailed from side to side. After the building has been moved in spring to a new station, the bin is to be pried up until the earth drops through, it having no bottom, and when empty it may be readily hauled by team, like a sled, to the place where it is to be used, as will be explained, in connection with chicken raising. The building is hauled on and off this bin yearly by taking the wedge-shaped platform for drying earth, previously figured, for a skid, and attaching the team to a rope 20 ft. or more long, and using small rollers. It is a quick and not over-troublesome operation, for it must be recollected that the house is not large nor heavy.

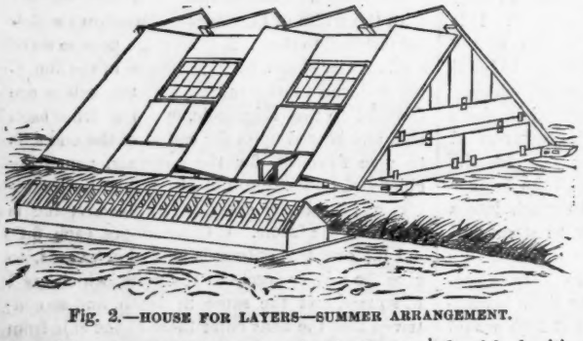


Fig. 2.—HOUSE FOR LAYERS—SUMMER ARRANGEMENT.

During the winter, a low structure, 6 ft. wide and 12 long, and $1^1/_2$ high on one side, and $3^1/_2$ on the other, seen at the left in the illustration, serves the purpose of a feeding room, and the rest of the year is used as a shelter for chickens. Its winter location is about 4 ft. from the larger building. E, E, E, E, represent doors which overlap each other to shed rain, and when closed rest upon the highest or north wall, and open upwards and to the south, resting upon a rail attached to posts set in the ground. In each door is a window 3 ft. square, glazed, as are all the windows in the various fowl-houses, greenhouse style. This feed-house is movable, being furnished with planks set edgewise, with runner-shaped ends for side sills. Inside, a feed-box, slatted on both sides, rests on cleats attached to the end walls, 20 inches from the north wall, and near the top of the room, so that dirt can not be scratched into it. It has a shelf 7 inches wide on both sides in front of the slats, on which the birds stand while feeding, and contains a trough made by nailing boards 3 inches wide to each edge of a board 5 inches wide. A door, F, in one end of the feed-room, large enough to admit a fowl, communicates with a similar door, G, in the south side of the main building, by a movable covered passage, $5^1/_2$ ft. long, $1^1/_4$ high, and 1 wide, it being like a box with a lid, and but one end, and with an opening on one side. This passage is not shown in the illustration. Every night in winter, after the fowls are at roost, the door G should be closed, and the window-shutters of the main building likewise. In the morning a mixture of vegetables boiled and mashed, scalded meal, and a little meat boiled and chopped fine, is placed in the feed-trough, and the daily rations of hard grain buried underneath straw which covers the ground of the feeding apartment to the depth of 8 or 10 inches. The fowls are prevented by the shutters from looking on. Next open the passage and in a minute the fowls will all be at the feed-box. After finishing the soft feed, the grain, consisting in part of buckwheat or cracked corn or wheat screenings, so as to make as much work as possible to find it, will be scratched for at intervals all day long. A little practice will enable the attendant to give just enough, and have none left over night.

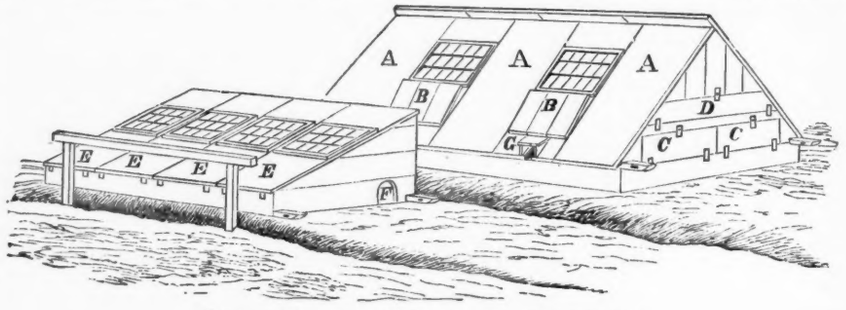


Fig 1.—HOUSE FOR LAYERS—WINTER ARRANGEMENT.

During a few of the coldest spells, such as usually occur three or four times in the winter, and last three to seven days, and during storms, fowls prefer to remain in doors all day, but they should never, except in the morning, before feeding, be prevented from going out if they choose. Altogether there are not usually twenty days in a year during which fowls will voluntarily keep inside all day. Snow should be cleared from a plat of ground at each station, with the aid of the team, and the scraper and shovel previously described. If the winter is open and mild, have a pile of straw out of doors with grain buried under it. As soon as the buildings are moved to the new stations in spring, and the feeding-rooms are also drawn off to be used in housing young chickens, the feed-boxes are taken out, they merely resting on cleats, without being fastened, and carried to the stations, where they stand on the ground out of doors during summer, for use each morning, feed being placed in them, out of sight of the birds, as before.

In the illustration of the summer arrangement the feed-box is seen in the foreground, and the doors in both roofs of the house are propped up a little, as in cases of extremely hot weather. It will be found that the birds will seek the protection of a building thus arranged, for shade, when the heat is severe, in preference to any other place. In summer the grain is buried under a profuse allowance of straw, by the use of a horse-rake and hay tedder, or under the soil, by means of the fine and short-toothed harrow used in pulverizing earth for gathering, as mentioned in a former paper.

The Alewife.

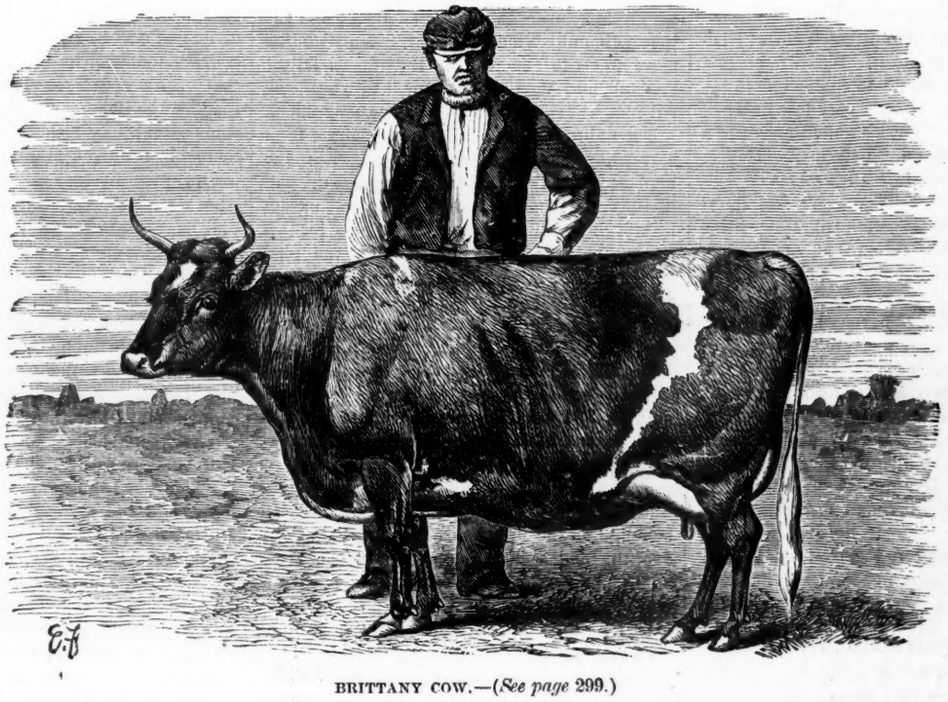
The Alewife *(Alosa tyrannus)* belongs to the great family of herrings (Clupeidæ), so numerous, and furnishing so large an amount of wholesome food as to be almost indispensable to man. It bears the name of Gaspereau in Canada, Buckie and Alewife in New England, and Herring in the Middle and Southern States. It generally keeps company with the shad, and by reason of its habit of breeding in brackish water, it is found in the estuaries of many small streams from which the shad long since disappeared. The same causes which have destroyed the salmon and shad are operating to diminish the numbers of alewives, and in many streams once swarming with them, they are seldom or never seen. They are much more abundant along the coast of the Southern and Middle States, because there are fewer dams at the mouths of the streams. In New England, almost every small stream, large enough to carry a mill of any kind, is dammed near its mouth, and very early these fish were cut off from their breeding-ground. They are still taken, however, in nearly all the streams where shad are found, and in some brackish ponds where the shad were never known. In the South they are still so abundant that no thought of scarcity has ever been entertained. Farmers from the back country come down to the fishing-houses and carry away immense numbers every season. In the East they have disappeared from a very large number of streams, and are only taken occasionally in seines drawn for other fish. They are so prolific, and a few still remain in so many of the streams, that they might be restored with much more facility than either shad or salmon; and they have probably such a connection with the food supply of the young fry of these better kinds of fish, that they may be regarded as their forerunners.

ALEWIFE.—(*Alosa tyrannus.*)

There are several runs of the alewives, the earlier being the larger fish. They are from six inches to a foot in length, depending somewhat upon their age, and the streams that they frequent. The average weight is about six ounces. They come on to the coast early in the spring, and only visit fresh water for the purpose of spawning. The most of them disappear in June. The fry remain in the waters where they are hatched until November, or later, and then go to sea. At this time they are three or four inches long. If from any cause their exit is shut off and they are detained in fresh water, they do not grow much after this period.

The Mode of Capture.—Although the alewife will take a bait, they are almost always captured in nets, pounds, or seines. Immense numbers are taken in the pounds set for larger fish near the mouths of large rivers, and in small streams and ponds the seine is used. Where there is a fish-way around a dam they are easily taken in scoop nets, at the foot of the rapid. Near Cross's Mills, in Charlestown, R. I., there is a valuable alewife fishery that has not been much affected by the causes which have destroyed them in other places. The Charlestown ponds communicate with the sea only by a narrow passage, which is frequently closed by the action of the waves, and has to be artificially opened. There are no large streams running into them, and the fish come in to shoot their spawn in the brackish water made by springs near the shore. The menhaden as well as the alewives come into these ponds to spawn, and if the ponds are closed in winter, as sometimes happens, the menhaden are all killed while the other fish survive. A seine is used near the breach for the capture of the alewives. It is about one hundred fathoms long, and the mesh is 1¼ inches in the bunt or midde part. They are also taken in other parts of the pond, as the shoals make their appearance upon the surface of the water. About 100,000 fish are taken at all the fisheries, and the numbers are said not to be materially diminished. Owing to the better implements of capture more are probably taken than in the early days. They begin to come in as early as the 1st of March, but the main run is from the middle of April to the middle of May.

Curing of the Fish. — In some places they are simply pickled, packed in barrels, and sent to market. At the Charlestown ponds they are salted, smoked, and, to a considerable extent, sent to merchants in the villages of Rhode Island and Connecticut. Immediately after capture they are taken from the boats, washed clean, and salted whole in casks. The rule in salting is two quarts of Turk's Island salt to one hundred fish. They remain in the pickle from three to five days, and are then removed to the smoke-house. To prepare them for smoking, a wand two feet long is thrust through the eyes of ten fish. These wands are suspended upon the ends on poles arranged for the purpose in the smoke-house. The smoke-house is purposely made small say 8 or 10 feet square, and is built over a walled pit about 4 feet deep. It is about 8 feet between the joints, and accommodates six or seven tiers of fish, which are arranged upon the poles about as close as they can hang. About ten thousand can be smoked at a time in one of these houses. The smoking continues two days. The fish are then ready for market, and are sent off as fast as they can be sold. Green wood of oak or hickory is preferred for making the smoke, and the fire must be very gentle, so as not to heat the fish.



BRITTANY COW.—(*See page* 299.)

Economical Results.—The first fish sent to market are of the best quality, and bring about three dollars a hundred. They are full of spawn, and quite fat, and are considered of better flavor than the late fish, which are sometimes taken after spawning and are very poor. The price falls off until it reaches about a dollar a hundred, wholesale. They are retailed from one to three cents a piece by the village dealers. The fresh fish are retailed to the farmers, and to all who come for them, at fifty cents a hundred. Rarely, they are so abundant that

they are caught and sold for manure. The cured fish are much used by the laboring classes in the cities and large manufacturing towns. It is one of the cheapest forms of animal food, costing the consumer only about three cents a pound. To those who live in the vicinity of a fishery and cure their own fish, the cost is much less. In some places the fishery is owned by the town, and is sold annually to the highest bidder. The Agawam, at East Wareham, Mass., is rented thus at $600 to $900 a year. The yield is about 1,500 barrels of alewives.

THE RESTOCKING OF STREAMS with this fish is very easily accomplished. In many streams where there are few still left about the estuary, nothing more would be needed than to put up a fish-way over two or three of the dams. In others, fish would have to be brought from other quarters. In either case the cost is so small, and the results are so promising, that the work ought not to be delayed. This work is going on at many places on the New England coast. The Poquonoc Fish Company have had a large run of fish this season, as a consequence of the spawning of a few alewives in the first pond above tide-water, two years ago. The fish-way costs less than $40, and may answer for shad and salmon as well as alewives.

Walks and Talks on the Farm—No. 92.

A few days ago, I had a letter from our friend John Johnston. "I want to show you my apple-orchard," he wrote, "planted eight years ago, last May. The trees had an immense quantity of fruit on last year, and I had a great many picked off when quite small, thinking they would break down the branches. All who see them say they are the finest trees they ever saw. They were only two years old when planted. If you will come, I will tell you what I did for them, that makes them look so splendid. Come and see, and *then you will believe.*" It is hardly complimentary to suppose that I would not believe without seeing. Almost any man will believe a thing when he sees it. But it requires a certain amount of training to enable one to believe without seeing. It is a very low order of intellect that will not yield implicit assent to a statement that rests on satisfactory evidence. Many farmers rather pride themselves on this mental characteristic. "You can't fool me!" is one of their ever-recurring phrases; while it is a matter of observation that, of all men, these incredulous people are most easily duped. I should despair of ever amounting to anything, if I could not believe without seeing.

But I am very glad I went to Geneva. Mr. Johnston's trees are, by far, the handsomest and healthiest I have ever seen; and I came back with a determination to at once carry out his recommendation. I have gained this much, at any rate, by *seeing* the trees. The plan is simply to make a lye, just as you would for soap, and wash the trunk and larger branches of the trees with it. "If the lye was *very* strong," Mr. J. said, "and made from hickory ashes, it might, perhaps, need to be diluted with a little water; but the lye from ordinary ashes is not too strong." He applies it with a swab tied to a stick. A man went over an orchard of a hundred trees in an afternoon. He has done this once every two years. There is not a particle of moss, lichen, or fungus, on any of the trees. The stumps are as smooth as the standard of a mahogany table. And I do not wonder that Mr. Johnston feels proud of them.

Still, I do not think that this splendid result is due merely to this biennial washing with lye. The land is thoroughly underdrained. It is a rich, clay loam. The trees were only two years old when set out—and a well-grown two-year-old apple-tree is better than a poor-grown one four years old. Then, great pains were taken to prepare the land, and to set out the trees. Wide holes were dug, two feet deep; and some decomposed swamp-muck put in the holes, and covered with good soil. The trees were then set out and staked, and *the land has been kept in hoed crops ever since*, and I presume has been liberally manured. And you must recollect that Mr. Johnston's manure *is* manure—not rotted straw. And the coal-ashes from the house have been put round the trunks of the trees. In short, it is quite evident that Mr. J. has petted his trees almost as much as, during his long life, he has been in the habit of petting his cows and his sheep. He is constitutionally incapable of neglecting any thing he undertakes. Thoroughness is an essential characteristic of the man, and accounts for much of his great success.

I was telling Mr. Johnston about the red-root, or "pigeon weed," as he calls it, that came up in such immense quantities in my two-year-old clover-field, this spring. "It is a terrible pest," he said, "and cost me a great deal of trouble to get rid of it. I thought, at one time, it would ruin me." He studied the habits of the plant, and thus ascertained how best to attack it. He sowed some red-root seed in flower-pots each month, commencing in February, and kept them well watered. The seed sown in February, March, April, May, and June, did not germinate any earlier than that sown in July. That sown in August germinated more freely, while that sown in September came up at once, and in great numbers. Here he got an explanation of the fact that red-root rarely proves of any damage to any crop except winter wheat. It shows, too, that a summer-fallow for wheat will not kill it. The seed mainly lies dormant in the ground during the whole summer; and the thorough cultivation causes it to start up the more freely in the wheat. But if you fallow the land, and then do not sow it to wheat, the red-root will spring up and can be easily killed.

The red-root seed gets into the manure from clover-hay and wheat-straw; and when the manure is applied to wheat, it springs up, and there is no chance of killing the plants except by weeding and hand-hoeing. It was for this reason that Mr. Johnston adopted the plan of spreading his manure on grass land in September. The red-root seed then germinates, and when the land is plowed over next spring, the plants are turned under and killed.

He advises me to treat my clover-field, where so much red-root has gone to seed this summer, as follows: Pasture it with sheep, and eat it down close. Then, during the latter part of August, or early in September, harrow the ground and tear up as much of the soil as possible. Then draw out all the manure that can be found on the premises, and spread it evenly over the land, and take great pains to break up all the lumps. Thomas' smoothing harrow is just the implement for this purpose. In this way, he thinks, I shall cause all the red-root seed that has fallen on the surface of the land this summer, to germinate; as well as that contained in the manure. Plow up the land in the spring and plant corn. I propose to carry out this plan, except that I think I shall sow peas instead of corn; and then, after the peas are off, sow winter wheat and seed down with clover.

A correspondent of the *American Agriculturist*, at Alton, Illinois, incloses a letter he has recently received from his brother, "containing," he says, "a fair and just criticism, mainly of what he has read in the *Agriculturist*," and which he would like to see published. Here it is: "I gather from the *Agriculturist* a great many items of interest to me as a farmer; *first* among which is 'Walks and Talks.' The writer lives in a part of the country that I never saw, and has Essex pigs and South-Down sheep, manuring and draining, smartly on the brain; still, I find, beyond controversy, that *thorough cultivation*, manure, and draining, are the main springs of successful farming. I mean such manure as a poor man can make, or save; and drainage by open ditches. Tiles are too expensive for the mass of farmers. Most farmers in the Middle and Western States are poor; or, more correctly, they commenced poor and on a small scale. * * They cannot live on prospective profits. They *can not wait.* The profit must come yearly, from one crop or another, and no dodging. * * My notion is, that *thorough cultivation* is the poor man's way to high farming; as in it he gets much of his manure from the air and rain, and his drainage from deep and frequent stirring of the soil."

I do not object to such "criticism." I have felt all the difficulties he alludes to, and have spoken of them time and again. No one realizes more fully than I have done, the fact that a poor man must have something to live on. I have, for this very reason, frequently sown a crop, when I knew that if I could only afford to wait I should have made more money in the end by summer-fallowing the land. The *principles* I have endeavored to teach, are believed to be correct. But a farmer must judge for himself how far he can adopt them.

"Thorough cultivation *is* the poor man's way to high farming"—and the rich man's too, on the great portion of land in the United States. And this is precisely the doctrine I have always taught. And I am more and more convinced of its truth, as I see its effect on my own farm. Stirring the land hastens the decomposition of the organic matter in the soil, and otherwise renders the latent plant-food available. To some extent, too, it enables the soil to absorb ammonia from the atmosphere.

"That is all very well," says the Deacon, "but what have you to say about having 'Essex pigs and South-Down sheep on the brain'?" Simply that no matter how impartially a man may write, he is very apt to be suspected of interested motives. I have been accused of having Berkshires and Yorkshires on the brain, and yet I have not a single pig of either of these breeds; and so with sheep. I like South-Down and Leicester sheep because of their intrinsic merits. But I have not a sheep of either breed. I have written a good deal in favor of Shorthorn and Ayrshire cattle. But I do not breed them. This is what I have "on the brain:" *that farmers should use thorough-bred male animals to cross with their common stock.* If, among cattle, they prefer Shorthorns, or Devons, or Herefords, or, for milk, Ayrshire or Jerseys, I have no objection; if they like Cotswolds or Leicesters or Lincolns, for long-wool and mutton sheep, or if they prefer the South-Down, I say go ahead and prosper; if they prefer Yorkshire or Berkshire or Essex pigs, I still say all right. You can hardly go wrong. It will make *comparatively* little difference which breed of pigs is selected, *provided* the animal is thorough-bred and is a good specimen of the breed. This is

what I have "on the brain," and I could wish that all the good farmers in the United States were affected with the same disease. I say *good* farmers, because a poor, careless feeder and manager can never have good stock, no matter what breed he selects. Of course there is a great difference in the different breeds of animals, some are adapted for one purpose and some for another; and it is here that the farmer should call to his aid all the information he can obtain. No breed is best everywhere and in all circumstances, and he is a "quack" who claims any thing of the sort.

"Again," the same writer continues, "Walks and Talks sometimes nauseates me a little in his rotation system. He generally commences with turning down a clover sod. Now this is all right, if said farmer lives where clover does well, and does not freeze out, as clover and winter wheat frequently do, in a large portion of the country, and if all farming could commence on old land, fenced off in five or six fields ready to his hand; but such is not the case. When a farmer commences with breaking prairie sod or clearing timber land, making his own rails to fence, you see such rotation is absurd, and seems in many cases to create a distaste for agricultural information from such writers."

This is rather severe, and I hope unjust. I should be exceedingly glad to adopt the suggestion of the gentleman, and commence my rotation with a prairie sod, were it not for the fact that there is not a bit of prairie sod within hundreds of miles of me. This may be my misfortune, but can hardly be considered my fault. I have to begin my rotation with what I happen to have. I have talked and written a good deal about rotation, simply because it is an exceedingly important matter, and one which necessarily largely occupies my thoughts, especially with reference to the question of killing weeds. I bought a wet, weedy, run-down (but not exhausted) farm, and I am trying to drain it, to clear it, and to make it productive. If it was in Illinois, I should have adopted different methods from what I thought best here.

When I lived in the city I had a garden; I wrote a number of articles called "Walks and Talks in the Garden," and when I sold the garden and bought a farm, I commenced to write "Walks and Talks on the Farm." I little thought that they would attract half the attention they seem to have done, or I most certainly never should have written them. I have told what I have done and suffered, what I have hoped and feared. I have given a faithful record of my farm life; its pleasures and drawbacks, its successes and failures. I have received complimentary letters from hundreds of farmers whom I have never seen, in all parts of the country. They have been a source of much encouragement and pleasure, and, on the whole, I am *not* sorry that I have written them. But it should be understood that these "Walks and Talks" are not editorial articles, designed to give directions for the management of farms in all parts of the country where the *American Agriculturist* circulates. They are merely a record of what I am doing on my own farm, with such reflections as may seem pertinent. I never supposed that a cotton-planter in South Carolina, or a sugar-planter in Louisiana, or a corn-grower on the rich bottoms of the Southwest, would adopt the same rotation that I find best on the wheat-growing land of Western New York. The truth is, practical agriculture can never be taught by book and papers, or by agricultural colleges. They can only teach general principles. The application must be left to the good sense of the individual farmer. If he has got good sense, a good agricultural paper will be a great help to him; if he has not, he had better turn his attention to something else than farming. A farmer, of all men, must learn to think for himself, and that book or paper is best that furnishes food for thought, and stimulates him to persevering efforts in improving himself and his land.

The principles of agriculture are the same in Illinois as in New York; but the mode of applying them differs with the soil and climate. For my part, I read the Prairie Farmer and the Western Rural with as much interest as I do the New England Farmer and the Albany Cultivator. They furnish me as much useful information as the excellent agricultural journal published in my own county. And yet the mode of farming practiced in these different sections of the country is very different from that adopted here. If a man will honestly tell what he is doing on his farm, and what the result is, I do not care where he resides. I should read his statement with interest.

What I have on the brain is *weeds*. Some people think that with modern agricultural implements, and the vast extent of fertile land in the United States, we shall produce so much more grain, and meat, and wool, than can possibly be consumed by our population, that prices will fall so low that there will be no profit in farming. Were it not for weeds and insects, such probably would be the case. My own farm and the Deacon's are overrun with weeds. We are fighting them to the extent of our ability, and are meeting with gratifying success. Our farms are becoming cleaner and cleaner every year, but even yet the weeds cost us more than all other taxes—town, county, State, and national—direct and indirect, combined. I do not mean that the labor of destroying them costs so much, but the weeds that escape, damage our crops to such an extent, that we lose half our profits. You must recollect that the actual profits of farming, after deducting the interest on capital, the cost of labor (our own or others'), the wear and tear of implements, etc., are exceedingly small. I know of comparatively few farms where, after making these deductions, the actual profits are more than five dollars per acre. On the other hand, I know of scores of farms where, at least on some fields, the weeds damage the crops ten dollars per acre. And, depend upon it, no farmer can be really successful until he makes an earnest, persevering effort to clean his land. It is fortunate for us, that the means used to accomplish this object will do much towards enriching the soil.

I was in Genesee the other day, looking at Mr. Wadsworth's fine herd of Shorthorns. The pastures on these celebrated Genesee flats are overrun with weeds, and I saw in one field six men with scythes, cutting thistles. The soil is very rich, and, although it is flooded nearly every spring, there is abundant opportunity for draining. I saw one field of six acres, that yielded over 80 bushels of shelled corn per acre last year. And yet the pastures adjoining do not carry more than one steer to three acres. The more experienced feeders say that the great point is to stock so light that the steers have abundance of feed throughout the season.

They go to Buffalo in the spring, and buy in the market three and four year old steers, weighing about 800 lbs., at, say, 5½ cents per lb. They are turned on to these rich pastures, and kept until the grass falls in the fall. The average gain on a fair lot is about 350 lbs. If they get a cent a lb. more for them when fat than they paid for them, they think they are doing well. They make about $30 per head, or say $10 per acre. Canada steers are preferred. They do not care how thin they are, provided they are thrifty. As one of the graziers expressed it, they like to "buy bones to put flesh on." I was a little disappointed in these meadows and pastures. There are too many weeds, and much of the grass is coarse. A little draining, and judicious management, would render them capable of carrying much more stock.

It would seem as though this splendid section would become the head-quarters of the State for Shorthorn cattle. The time will surely come, when it will be more profitable to raise and fatten good cattle that mature early, than to depend on buying "bags of bones," for the purpose of putting a little flesh on them during the summer, and selling them in the fall, at a time when beef brings a comparatively low price. The English farmers find it highly profitable to feed their cattle and sheep some grain or oilcake while at pasture. This improves the land almost as much as it improves the stock. But it is necessary to have well-bred animals, that grow rapidly and mature early. Shorthorns are being gradually introduced among the enterprising young farmers up the valley, and the general stock of the district shows a marked improvement over that in this neighborhood. I found, however, that the opinion was not uncommon, among even good, sensible, successful farmers, that there was more money to be made from the so-called native stock than from Shorthorns and their grades. And I have no doubt they are right, *unless a system of higher feeding is adopted.*

A good many long-wooled Canada sheep are kept, and seem to be gradually displacing the Merinoes. Some of the farmers, however, seem to give these sheep no more attention than they have been in the habit of bestowing on their Merinoes. They let them have plenty of food when they have it to spare, and when they are short the sheep have to pick up a living as best they may. "There is no profit in sheep," they say; and they are right, when the sheep are half-starved, and compelled to eke out their subsistence from their own accumulated flesh and fat. But I am inclined to think that a properly managed flock of sheep will pay better in this section, to-day, than any other farm stock. This is John Johnston's opinion, and I know of no farmer who has had greater experience, or whose judgment is more to be depended upon.

"If you ever have footrot break out among your sheep" said Mr. Johnston, "let me know, and, if I am well enough, I will come and show you how to cure it. You can do it yourself; but I have told a good many people how to do it, but I scarcely ever knew one of them who succeeded. They don't follow the directions."

"I thought at one time," he continued, "it would ruin me. I had over a thousand sheep, and the footrot broke out among them. We could cure the sheep affected, but it kept breaking out among the others. I went to bed one night greatly distressed about it. I kept thinking and thinking the matter all over. Finally I exclaimed, 'I have it!' 'Have what?' asked my wife. 'I have found out how to cure the footrot.' 'I am afraid you'll never do that, John,' she replied. 'Yes, I can, I am sure of it.' In the morning I told the man to get up the sheep, and we went at it. We dressed *every*

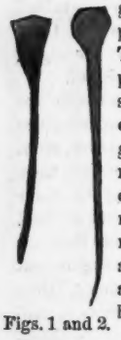
sheep, and those that were affected we drew out, and put in a field by themselves. These we dressed again the next day, and the others in two or three days. We cured every sheep, and banished footrot from the flock."

"What did you dress them with?" I asked, "though I suppose that is not the essential point." "No," he replied, "the point is to dress the whole flock, whether they have the footrot or not, and another essential point is to pare off the hoof, so as to lay bare all the affected parts. Nothing can cure the footrot without this being done. I used blue vitriol ground into powder, and made into a salve with tallow; and if the weather is very hot, use beeswax instead of tallow. Rub this salve between the claws with your finger, and all over the foot, being careful that no part escapes. Those affected are treated in the same way, only that more pains are necessary to get the salve in direct contact with all the diseased parts. Two, or at most three, dressings will effect a cure."

How to Replace a Horse's Shoe.

Much time is often lost at inconvenient seasons because a shoe needs replacing, and every thing must stop while a journey is made to the blacksmith's. If one of the boys could nail on a shoe, without endangering the safety of the horse's foot, this loss of time might be avoided.

To replace or fasten a shoe that has just been cast, or is about to be, the following tools are required: A light hammer, a piece of iron on which to trim the nails, or clinch them (an old hammer-head of two or three pounds' weight is good), a pair of pincers, a thin, long punch, and some horseshoe nails. These nails should be kept ready prepared; the preparation consists in beating out the point sharp enough to penetrate easily, and giving it a little bend; also trimming the head. Figure 1 shows the common nail, and fig. 2 the same made ready for use. The hammer must be only a little heavier than a tack hammer, or it will bend, and not drive the nail, and it must be used with light, sharp blows.



Figs. 1 and 2.

Let us commence now to put on a shoe. The old one is to be removed, if not already off, and the old nails drawn out; if any fragments remain, drive them out with the punch. This is important; a piece left in might work through the crust into the foot, and lame the horse, and he would then have the founder, or a sprain, or be lamed in the stifle, and it might be recommended to blister him, or to fire him, or to torture him in many ways; all of which may be avoided, if care be taken not to leave pieces of nails in his hoof. Then take the horse's foot between the knees; place the shoe, and set a nail so that the turned point will pass outwardly, an inch and a half at least, above the edge of the shoe; hold the fingers on the hoof, where the nail should come through, and if it does not come out just right, draw it and try again; don't drive it too far before stopping. There is no danger of hurting the horse, if you stop in time; and after one or two trials, you will hit the exact spot; practice will soon teach. Avoid driving any nail too low down; they should all come out evenly. If one is driven too low, a piece of the hoof will either split off at once, or it will break off soon. Figure 3 shows how the nails ought to be placed, while figure 4 shows them badly placed, but as they may very often be seen. As the nails are driven through, turn them down until all are in; then, with the pincers, nip them off an eighth of an inch from the hoof. Put the iron block under the head of a nail (first turning round and taking the horse's foot in the lap over one thigh), turn the point downwards, and clinch it into the hoof; proceed thus all around, and the job is finished. The horse may now go to work, and that shoe will last until there is an opportunity for the blacksmith.

Fig. 3.—RIGHT.

Fig. 4.—WRONG.

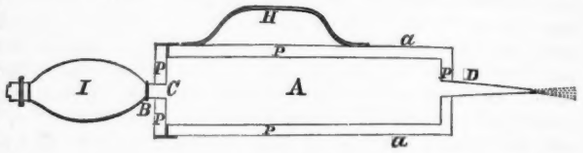
A Fruit Ladder.

In previous numbers we have given designs for ladders which are self-supporting, and allow one to gather the fruit without resting at all upon the tree. We now illustrate a very simple ladder, which may be used upon old trees, and is much to be preferred to the ordinary form, as it may be set among the limbs without injuring the branches, or knocking off the fruit spurs. It is light and portable, and so simple, that the engraving does not need any explanation. All choice fruit should be hand-picked, and it is best to use a deep fruit basket, with a hook attached to the handle, to allow it to be suspended from a limb, in a convenient position. A deep basket is not liable to be upset by being unequally balanced.

ORCHARD-LADDER.

A Fumigator for Plants and Poultry.

Mr. A. M. Halstead brings us a drawing of an implement, which he finds very convenient where tobacco fumigation is to be applied locally: *A* is a cylinder, made of tin, 7½ inches long, by 1½ in diameter; *a a*, is another cylinder, 2 inches diameter, 8 inches long, placed outside the first, and the space *p p* between the two filled with plaster. *B* is a cap, or cover, fitting over the open end of the cylinder, likewise having ½ inch thickness of plaster, kept in place by an inner disk of tin. Through this passes a tube (*C*), connecting with *I*, which is an India-rubber bulb, such as is used for syringes. *D* is a spout, extending 4 inches beyond the outside of the cylinder, the outer orifice being about ⅛ inch in diameter. *H* is the handle.



FUMIGATOR.

The inner cylinder, *A*, is filled, or partially so, with tobacco; a coal of fire dropped in, and the cap put on. This cap must fit tight. The bulb *I* is then worked with the hand, and forces the smoke from the spout in a dense jet. In smoking house-plants I take a large-sized paper bag, inflate it, and place it over one or more plants; fill the bag with smoke, and let it remain so for a few minutes. Insect life is by this treatment speedily and thoroughly extinguished.

For poultry, visit the hen-house, after the fowls have gone to roost, and, inserting the nose, or spout, of the fumigator under the feathers, in all parts of the body, puff the smoke through them, only being careful not to let the fowl inhale it, as it may produce insensibility. For sitting hens—inject the smoke into the feathers, and also into the straw or hay, and the cracks of the nests. I have cleansed nests by this mode, that were fairly alive with lice, either killing them, or driving them away.

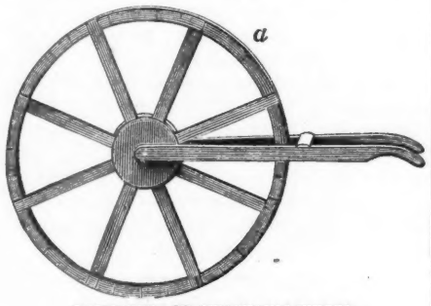
Salt-Marsh Mud as a Fertilizer.

The application of salt-marsh mud as a top-dressing for grass land, undertaken by J. D. Fish, of Stonington, Connecticut, has proved so satisfactory, that it is to be renewed again the present season. A steam-digger was used in the fall of 1869, and a large quantity was removed from the bottom of a salt-marsh pond to the adjoining meadows. It was dumped directly from the bucket of the digger into the cart, and drawn off by teams, and dropped in heaps where it was to be spread. It cost about 60 cents a load of a ton and a half. Beneficial results soon appeared upon the grass where it was spread. The first crop, it was estimated, was increased a third, or more, by the application. This May the effect was still more marked, and the contrast between this meadow, and the adjoining lands not treated with this fertilizer, is very striking. The line where the dressing stopped, is very distinct. All over the meadow the grasses are well set; the white and red clover have come in abundantly, and the herd's-grass is well rooted. A few acres of better land and grass were treated the same season with a dressing of rock-weed, which is considered one of the best fertilizers drawn from the sea. About the same value in money per acre was put in the rock-weed as in the salt-marsh mud. The yield of the land dressed with the weed was much less the first season, and this spring there is four times the grass upon the land dressed with the mud. It is estimated that a heavy dressing of stable manure, costing twice as much, would not have put the land in so good condition as it now is. If the season is

favorable, the yield will not be less than two tons of hay to the acre. There can be no doubt, that these salt-water ditches and ponds, full of decayed sea-weed and marine deposits, are one of the cheapest sources of manure to the shore farmer. It is by no means necessary to have a steam-digger to procure it. In many places the teams can be driven to the edge of the ditches and loaded. Even where planks and wheelbarrows are necessary at low tide, it will pay well to get it. It is much richer in ammonia than common yard manure, and will help all farm crops. The shore farmer has no occasion to invest in guano or superphosphate, if he will liberally use this neglected fertilizer. If the mud is to be carted a half-mile or more, the extra expense of removing it from the ditch with the wheelbarrow will be compensated in part by the lighter cartage, as it will lose half its weight in the water that drains from it. This fertilizer is accessible at all seasons of the year, at every low tide, and the experiments upon Mr. Fish's farm show that it pays better than sea-weed. CONNECTICUT.

An Odometer, or Measuring-Wheel

Wm. H. Barnes, Oakwood, Kansas, sends a drawing of a wheel, for measuring the boundaries of fields. It is exactly one rod (16½ feet) in circumference, and at one point a pin is



ODOMETER, OR MEASURING-WHEEL.

placed, which every time it comes round indicates that one rod of ground has been passed over. This instrument can be made useful in laying out fields, and we would suggest the advantage of arranging farms into such divisions, that the size can be easily calculated and remembered. For instance, a field 40 rods square contains 10 acres; 80 rods square contains 40 acres. Where the original division of the land has been made in squares, as in the Western States, this is easily done; but even in the Eastern States, where boundaries are often very irregular, fields may be made to approach the square form more commonly than they now are. To ascertain the contents of a square field, multiply the length of one side, in rods, by that of the next side to it, and divide by 160; this will give the number of acres.

How to Build a Boat.

Rivers and lakes being so plentifully interspersed over our territory, boats become articles of great convenience, or absolute necessity, and the ability to construct one, however rude it may be, is a useful accomplishment.

We aim in this article to give directions for constructing a boat, capacious enough to carry two good-sized men and a fat buck, if they should ever be so lucky as to be compelled to carry one home, and at the same time sufficiently light to enable it to be carried about easily, when required to be removed from one piece of water to another, overland.

The boat is flat-bottomed, and the keel or bot-

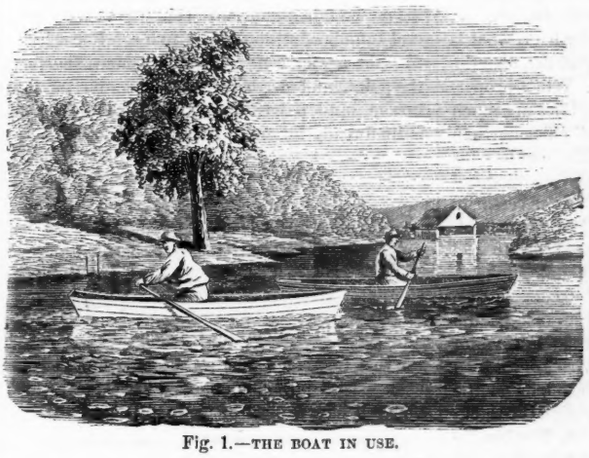


Fig. 1.—THE BOAT IN USE.

tom is of board three quarters of an inch in thickness, of white pine, or other light wood that will not readily split. The length of the boat represented is nine feet, width two to three feet, depth eighteen inches. These proportions may be varied to suit circumstances.

To shape the bottom or keel, take two boards of the character before mentioned, and twelve inches wide, join them together by a tongue-and-groove joint, make the joint water-tight by means of pitch, and fasten a cleat across with clinch-nails or screws, to prevent its spreading. Mark out with a pencil the shape represented in figure 2. Cut this out very accurately, and plane very smoothly to line, with a slight bevel upwards. The more carefully this is done, the closer the joint and the dryer the boat will be.

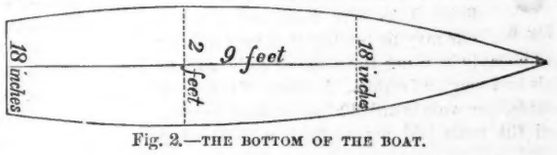


Fig. 2.—THE BOTTOM OF THE BOAT.

The stem is made, preferably, of a tamarack "knee;" if this can not be readily procured, cut out of soft maple a "knee" one inch thick, as a substitute. This should represent an angle of something over 90 degrees, so as to give a forward rake, as in figure 3. The front of the upright portion should be beveled to a fine edge, the bottom dressed square, and fitted to the keel in its place with screws, or wrought nails riveted over burrs. The stern (figure 4) is of similar stuff to the keel, cut 6 inches wider at the top

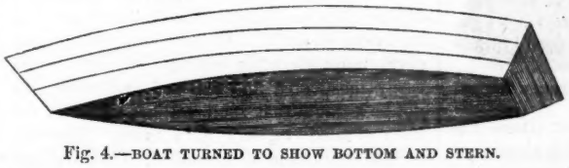


Fig. 4.—BOAT TURNED TO SHOW BOTTOM AND STERN.

than at the bottom. The side boards should be of quarter-inch spruce stuff, well seasoned, and dressed, at least on the outside, to present the least resistance to the water. To give the boat the proper shape, cut out patterns representing the cross section of it at those parts crossed by the dotted lines. The sides should spread a little, that is, should be wider at the gunwale than at the keel, say 6 to 12 inches. The patterns should be cut accordingly, and be tacked lightly to the keel-board, to hold them in their place until done with. The dotted lines which cross the boat are drawn at equal distances, and show the width at those places which is greatest a little back of the center (figure 2). It is a great point in hunting to have a boat that will make no ripple, and this gradual decrease of width towards the stern avoids all noise as the boat passes along. A boat of this pattern will do this perfectly, and will be found easier to row or paddle. When the molds are properly placed, take the boards—which should have been previously soaked at the ends in water—and fit them to their places, holding them with a clamp, until securely nailed to the stem and stern; all nails which pass through the boards where they lap, should be clinched on the inside; boat nails should be used. When the first board, which is the bottom one, is put on, fit the next, allowing three quarters of an inch to lap. Between the boards, at the lap, place a piece of thick cotton cloth, dipped in tar, which will make the joint water-tight, or nearly so, and calking will be unnecessary; then fit on the top board, taking care the upper edge has a proper sweep; when the boards are fastened, put in two ribs, which should be of white oak, half an inch thick, and one and a half wide; soak them thoroughly, until they are pliable enough to bend into their places, and secure them by nails clinched on the inside. These should be placed midway between the molds, and not only strengthen the frame, but give a bearing for the feet of the rower. A piece of tin should be bent over the stem, and nailed from bottom to top, for a cutwater. Before putting this piece of tin on, fill in well with pitch and tallow.

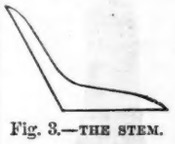


Fig. 3.—THE STEM.

The molds may now be removed; a strip two inches wide and one half thick should then be nailed all around on the inside; cleats are to be nailed on, for the thwarts (or seats), which should be placed six inches below the gunwale or edge; the hinder seat may be made of the lid of a locker or box, in which tools, nails, lines, a supply of putty, tallow, pieces of tarred canvas and tin, should be stowed away, as resources in case of damage or leaking. The bow of the boat should have a similar place made, to hold a supply of eatables when necessary. A baling dipper should be stowed away in one of these lockers. The bottoms of these lockers must be elevated two or three inches above the keel, to keep the contents dry. Fig. 5 shows the arrangement of the lockers and seat.

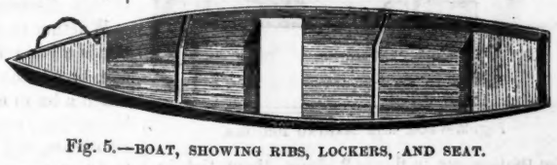


Fig. 5.—BOAT, SHOWING RIBS, LOCKERS, AND SEAT.

A ring-bolt and cord, sufficiently long, should be attached to the bow, for the purpose of tying up. To finish up the job, the seams must be

gone over carefully, and putty and white lead be applied to every crack; then two coats of paint ought to be laid on, the name painted on the stern, and she is ready for the launch.

A pair of oars may be made of ash, or, what is preferable, a pair of paddles, like the one shown in figure 6. When properly made and used, paddles are much more convenient and efficient than oars. In using a paddle, one has his face to the front, and can see all ahead of him; in rowing, it is necessarily the opposite to this. If oars are used, rowlocks must be fitted on to the sides. To make a paddle, take a piece of inch board (cedar is the lightest and best, but an oak paddle is very durable), six inches wide; dress out the blade quarter of an inch thick at the edges, half inch at the center, gradually increasing the thickness towards the handle. The handle may be whittled down until it fits the hand comfortably, then dress it with sand-paper perfectly smooth, and rub with oil; a smooth handle will not blister the hands. A boat thus made will look very nicely, but if means and time are wanting to finish it as here described, a rough one may be put together very quickly and cheaply by using the same or lighter materials in a rougher fashion. In place of three side boards, one wide board (12 inches) may be used, and the seats laid across flush with the top.

Fig. 6.

Brooms for the Stable and Barn-yard.

A cleanly horse or cow stable is very desirable, and will be appreciated, especially by the women folks, who often are troubled to find a clean spot whereon to place their milking-stool, to say nothing of their spreading robes. If cleanliness is next to godliness, in the house or person, very surely it is equally so in the stable or barn-yard; many highly improper feelings and expressions arise through contact with dirt or filth, in places where it ought not to be. The want of brooms, or scrapers, is made an excuse for dirt lying about where it is not wanted, and this excuse is valid to a great extent, as a stable-broom, fit to use, is rarely seen. The broom represented in figure 1, is made of twigs; birch being the best, as it is long and straight. Any stiff brush, however, will answer. Cut the twigs of a proper length—30 inches will make a good broom—lay them in a box, made

Fig. 1.—STABLE BROOM.

Fig. 2.—BOX FOR MAKING BROOMS.

like that shown in figure 2, draw them tightly together with the binders (fig. 3), which are stout sticks placed through eyes at the end of a short rope, wound once around the bundle; when pressed apart, they draw the twigs together with great force. Tie two pieces of cord (which should have been already laid across the box in the slots) around the broom; when it may be taken out and well bound with several rounds of strong tarred twine. For a handle take a stick long and stout enough, sharpen the point, and drive it into the center of the broom, until it has a good hold. The broom is then ready for use. It is hardly necessary to

Fig. 3.—BINDER FOR BROOMS.

say that this is not a lady's broom; and yet we have seen a lady handle one with vigor, rather than not have a clean place to milk in.

Will it Pay to Cook Corn for Hogs?

Mr. J. M. Martin, of Louisiana, writes to the *American Agriculturist* as follows: "In the Agricultural Report of Missouri for 1870, Mr. A. E. Trabue asserts, after making very careful experiments, that Indian corn in the crude state is better for fattening hogs than when boiled or steamed. His report is so positive, that, having had no experience myself, I am in doubt whether I shall make certain preparations for cooking the grain. I am desirous to make my own pork, and had concluded to place several sugar-kettles in a convenient position for boiling and steaming food, but desisted after reading this report. I would be pleased to hear from you on this subject."

Remarks.—There are breeds or sorts of hogs that grow so slowly, that they can eat and digest more food than they can assimilate or turn into flesh and fat. For such hogs cooking the food would do no good, and probably by deranging the digestive organs and bowels would do positive injury.

On the other hand, we have breeds of pigs that are capable of assimilating more food than they can digest. They have little offal, are exceedingly quiet, have been bred for generation after generation to simply eat, sleep, and grow fat. With such pigs, the main object of the feeder is to get them to eat and digest as much food as they are capable of assimilating or turning into flesh and fat. Grinding and cooking the corn, unquestionably renders it much more easily masticated and digested, and there can not be a doubt that such well-bred pigs as we have alluded to, will gain much faster on cooked grain than on uncooked. They will eat more food, or at any rate *digest* more, and will grow faster in *proportion to the food consumed*, than those pigs which eat and digest less. We have frequently shown why this result must follow, and can at this time only say that our correspondent will find the whole subject thoroughly discussed in "Harris on the Pig."

Whether to cook or not to cook, then, depends a good deal on the kind of hogs, their age, breed, and condition. If we were going to fatten a lot of common hogs that had been picking up their own living for eighteen months or two years, and their ancestors for generations had been accustomed to this kind of treatment; in other words, if they were slow-growing hogs, with a voracious appetite, and a stomach that could digest shoe-leather, we can see no use in cooking the corn for them. But if we intended to produce choice pork from pigs that mature early and fatten rapidly, we should, if going into the business on an extensive scale, certainly cook their food.—Eds.

Harrowing for Different Effects.

The operation of harrowing is next in importance to that of plowing. The ends to be attained are threefold, viz.: to reduce the soil to a fine, mellow condition, to kill weeds, and to cover seeds. Now these three operations are widely different, and yet the same implement is in many cases used to effect them all. To reduce the soil, a heavy harrow, driven with a rapid motion, is required; if sod ground is to be reduced, a different style of tooth from the ordinary straight one is necessary; to kill weeds, a light, wide-spreading harrow, with sharp, straight teeth is wanted, that will tear up, and leave on the surface, every root and sprout. The teeth of such a harrow should be long, sharp, and run closely. To cover seeds, a harrow that will draw the soil along the surface without penetrating deeply is needed, and for economy of time and labor it should cover a wide space.

In making or procuring a harrow, the purposes to be served should be considered, and that one chosen which is best fitted to perform the work desired. The variety of harrows offered to farmers is so great, that one is almost bewildered in making a choice. For pulverizing the soil, the Nishwitz harrow is, probably, not excelled; for dressing sod-ground, the Shares coulter-harrow is very effective; for destroying weeds on ordinary fallows, the common, straight-tooth harrow (with sharp teeth) has not yet been superseded; while for finishing a surface, and covering grass or clover seeds, or harrowing grain in spring, the Thomas Smoothing-harrow is the best that we have used.

Don't Sell the Best Calves.

A really choice cow will readily bring eighty to one hundred dollars. A cow that will make one pound of butter per day during six months, and half a pound per day during two or three months more, is cheaper at one hundred dollars, than a cow that will do half as much, would be at fifty dollars. Poor cows are more plentiful than good ones; and where little or no attention is given to improving the stock, good cows are fast becoming scarcer. If one wants to find good cows, he has to follow the track of a drover, who is constantly raking over the country places to supply the demand of the large towns and great cities. Thus the farming localities are being constantly depleted. But this would be of no damage, if the supply was kept up, and this constant draft replaced with young stock. Here lies the trouble. Not only are cows in demand, but calves are equally sought after. The farmer is constantly tempted by drovers and butchers, from far and near, to dispose of his calves. The majority of them can not withstand the flutter of a greenback ornamented with a large X. The choicest calves are, of course, selected, and these are generally from the best cows. Ten dollars is thought to be a good price for a calf four weeks old, and pays better than fifteen for a year-old animal. So would five dollars a bushel be a high price for potato sets; but few farmers would be tempted to tear them out of newly planted hills for that money. But does he not

sell the seed of a valuable crop, when he parts with his best calves? Many men say it costs more to raise a cow than to buy one. This is palpably wrong, as will be seen if they sit down and figure it out. But if it were true now, it could not long remain so; for cows must be raised; and those who raise them must be paid profitably, or they will not do it. We confess that there is some ground for the idea that it does not pay to raise cows, wrong as it may be, and it lies just here: The poorest calves are selected for rearing; and as it costs as much, and sometimes more, to feed a poor calf from a poor cow, until maturity, when it probably is worth twenty-five to thirty dollars only, as it does to feed a good calf, that would make a cow worth double that money at two years old. There is actually a loss in the operation, and the farmer is out of pocket, not only indirectly, but directly, in having spent more than he can get back again. A merchant doing business thus, would soon find work for an assignee or the bankrupt court; but such are the advantages of the farmer's occupation, that he is able to live, and often do well, in spite of his unbusinesslike methods. Let him make farming a business; let him calculate and figure out results, as other men are obliged to do; and it will be found that there is no operation on the farm, but pays fair interest over and above a good remuneration for labor and attention, if such labor and attention are only well directed; and most surely will he find that there is more money in a good heifer-calf, than any butcher could afford to give him, if he will only give the animal time to show it. So with a bull-calf; if one is to be raised, select the best. It is by a course of selection, that the present races of blooded stock have been built up; as it is by a contrary course, that the native stock has been run down. Our "native" stock has sprung from good sources, and if the best calves are retained on the farm, there will soon be a better supply of good cows.

A HUSKING PIN, which will be found very durable and worth preserving from one season to another, may be made out of a twenty-penny nail, ground sharp at the point and fitted with

HUSKING PIN.

a piece of leather, through which the second and third fingers are passed. Very neat and handsome ones may be cut out of bone.

The Pig Question again.

The author of "Walks and Talks" says: "C. D. E.," of Muncy, Pa., writes us a letter on the breeds of pigs. He says: "I have just read 'Walks and Talks,' and the article on 'Berkshire vs. Chester Whites,' in the *American Agriculturist* for May, and have come to the conclusion that the hog breeders of this country must submit to the inevitable decree of *fashion*, and for the future go in for *small* instead of large porkers! * * Well, let us reject the Chester hogs. They grow too large and 'coarse,' and are too heavy to handle. Let us try the Berkshire and the Essex, and if the fashion shall still tend downward, why not fall back upon the guinea-pig? What pot-pies they would make! Will our friend 'Walks and Talks' consider this proposition seriously, and if he fails to indorse it, give us a reason for his refusal?"—I cannot indorse this proposed cross, for the simple reason that the guinea-pig is not a pig at all! And another objection is, even if he were a pig, he is too long in coming to maturity, in proportion to his size. What I want in a thorough-bred pig, designed for crossing with common sows, is smallness of bone, little offal, rapid growth, fine quality of meat, and *early maturity*. I have no objection to size; but, so far as the efforts of breeders have yet gone, early maturity is always accompanied with a reduction of ultimate growth. If I were going to raise pigs to work in tread-powers, I should go in for large size and slow growth. But where pigs are required simply for converting corn into pork, I want such as will do this, and nothing else. The less corn is expended in producing bristles, bones, ears, legs, snout, and other offal, the more will there be left to produce good hams, pork, and lard. I do not want any more corn used to produce heat, motion, and the various functions of animal life than is necessary for health. I want the pig to eat all it can digest and assimilate, and the less of this digested food is used for any purpose, except the production of meat and fat, the more profit will there be in the business. Now, all this means rapid growth and early maturity; and early maturity is necessarily accompanied by a reduction in size.

Where cattle are kept solely for beef, breeders aim at early maturity; and such is also the case when sheep are bred for mutton. On high-priced land, a farmer can not afford to raise an ox *for beef*, that does not mature till he is six years old. He must keep one that will mature in two or three years. Such an animal will not be quite as large as the slow-growing one, but the beef will be produced at far less cost. The only objection to the system is, that richer and more costly food has to be used; and furthermore, it is desirable to get an ox that attains a pretty good weight before he matures, for the reason that it costs considerable to produce the calf. It is a slow process. We get but one calf a year. But in the case of pigs, we not unfrequently get twenty in a year. They can be multiplied with immense rapidity, and at small cost, and there is far less necessity for aiming at large size. The cost of this pork-producing machine is so small, that if twenty of them will produce more and better pork, at less cost for food, than one big machine, I prefer the twenty little ones—and so will the consumers.

I am well aware that a good deal can be said on the other side. In my own case, I want my pigs to live on clover during the summer; and if we pushed early maturity and small size to its utmost limits, the pigs would not thrive on clover. They would need much more concentrated food. But at present we are in no danger of getting our breeds of pigs too small.

The Brittany Cow Bessie.

Upon page 293 we give an engraving of a very interesting Brittany Cow, which is now the property of R. H. Allen, Esq., Summit, N. J., and, if we mistake not, was imported by him. Bessie is of a very dark, silver-gray color, with some white. When fresh she yields, upon ordinary good feed, from twelve to fourteen quarts of milk, and keeps up the supply well. Her hight at the fore-shoulders is three feet and four inches. She has a broad, heavy body, very small bones, a fine head and horns, and delicate limbs. This cow is as gentle and familiar as a pet lamb. This breed is quite rare in this country, dark colors being the favorites. Since the dispersion of Mr. Maitland's herd, we know of no one engaged in breeding these useful animals.

Drainage in Scotland.

There was published last year, under the auspices of the Highland and Agricultural Society of Scotland, an essay on Agricultural Drainage, for which the society's gold medal had been awarded to Mr. Hozier, its author. It has been said of another book, "What is good in it is not new, and what is new in it is not good." This would not be exactly a fair criticism of Mr. Hozier's essay, yet, at the same time, it would be more uncourteous than unfair to make it.

Land-drainage is not one of the exact sciences, it is true; still a good deal is known about it, and it is not to be expected that any new essay upon it should avoid repeating the fundamental principles that have been determined by long experience; consequently, we must expect to find in every new book much that is to be found in all of the old ones, and we may be well satisfied if, in addition to this, we find new and valuable principles set forth, or new and improved processes described. Mr. Hozier, while he proceeds systematically and well in giving directions for the laying out and execution of drainage works, advances some ideas which would be important if true, but which experience has led us to judge not to be true.

For instance, he insists on a fall of 1 foot in 200 feet, as the very least that can be allowed. Now, it is quite true that it is highly desirable to get this much fall when it is practicable, or even more; but there is an enormous amount of nearly level land that could not be drained at all, without the extensive use of open ditches, if this rule must be adhered to. It often happens that a main drain must be made 1,000 feet in length. If the fall of 1 in 200 is insisted upon, then the drain must be *five feet* higher at the head than at the outlet. If the land has this fall, well and good; but suppose it is a dead level on which we are to work, and that five feet is the utmost depth we can get at the outlet, then, if we follow the rule, the drain will run quite to the surface at its upper end. Now, it is possible to lay a drain so accurately that a fall of 1 in 1,000 ($^1/_{10}$ foot in 100 feet) will give a free and perfect current. There is a long main drain under the upper meadow in the Central Park that has only this fall. It was laid in 1860, and has always worked perfectly from that time until now. It is much easier to make a good drain on a fall of 1 in 600, and this would leave the upper end of the 1,000-foot drain in question, nearly $3^1/_2$ feet below the surface. We are strong advocates for all the fall it is practicable to get, but we also advocate the underdraining of land, in which the least practicable fall is all it is possible to get. If the work is properly done, very little fall will answer, but in such cases the grading of the bottom must be very carefully done, so that no fall shall be lost in one place by giving too much in another.

Mr. Hozier recommends that in heavy clay soils, drains should not be less than 2 feet 9 inches, nor more than 3 ft. 3 in. deep, and that the intervals between the drains be not more than 15 feet. This advice will not hold in many sections of America; for we rarely have such obdurate clays as he has in mind. Indeed, with a varied experience in drainage works in America, the writer has not found a soil that was not completely drained at 4 ft. depth, and

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WATERING THE HERD.—DRAWN BY WILLIAM M. CARY.—*Engraved for the American Agriculturist.*

35 to 40 ft. intervals. These measurements have, however, often been found insufficient in England.

The point on which our author's ideas are most at variance with our own, is the *size of tiles* that it is best to use. He insists on the use of large tiles; nothing less than 2½ inches diameter for lateral drains, and from 3-inch to 6-inch tiles for mains, 6-inch for the outlet of 12 acres. Our experience goes to show that 1¼-inch tiles for laterals answer not only as good, but a much better purpose than the large ones, while their cost, both for manufacture and for transportation, is less than half that of the 2½-inch; we would use 4-inch tiles for the outlet of 12 acres.

Mr. Hozier thinks a drain should never be filled full by the hardest rain; we think it an advantage to have them flushed several times during the season, insuring their thorough cleansing. Considerable experience in the practice of both systems seems very clearly to sustain our idea, and the experiments instituted for the purpose by the sewerage engineers of cities show ample reason for its soundness.

Any reader who will use due caution about accepting what seems to us to be the heresies of this essay, will find it replete with practical suggestions, and with sound arguments in favor of underdraining, and will be well repaid for all the time and care he may give it. There is given in it an instance of the complete stoppage of a stone culvert, not less than 15 inches square in the water way, by the roots of a tree, "and, though the drain was opened and cleared at considerable trouble and expense, hardly a year elapsed before the mass inside was as impenetrable as ever."

Watering the Herd.

A scarcity of water is something with which the majority of our readers are fortunately not familiar. We do not refer to the failure of streams and wells, which occurs in all sections in an unusually dry season, but a perennial scarcity of water, where miles and miles must be crossed before one can supply his own wants and those of his animals. Some excellent grazing regions in the far West and South-west, where the most nutritious grasses abound, are often discouragingly dry, and the droves and herds must be driven a long distance from their feeding-grounds to water. To the traveler across these plains the occurrence of water is a matter of the greatest interest. The other two requisites of a camping-ground, grass and fuel, he generally feels sure of finding by searching for them, but water occurs only in certain localities. The day's travel, whether of a few persons or a large train, is governed by the distance between watering-places. The writer has, upon several occasions, found these from fifty to seventy-five miles apart—distances somewhat appalling to one having charge of a slow-moving train. After the forced abstinence from water that attends a long march, the animals become almost frantic when they reach camp, and rush for the pool or stream in the wildest manner. In traveling in a country where Indians are troublesome, and the camp, as is frequently the case, is at some distance from the water, it requires no little circumspection on the part of those in charge of the animals to prevent a surprise on the part of the enemy. Many an emigrant train has been left without means of transportation by allowing the animals to be driven to water without a guard sufficiently strong to repel an attack.

Rustic Bridges.

Where there is a stream of water in public or private grounds, an opportunity is offered for introducing a pleasing ornamental feature in the shape of a bridge. A structure of this kind may be very simple and cheap, or highly elaborate and expensive, according to the tastes and means of the proprietor. It is only in places which are highly embellished that an expensive structure will be in keeping with its surroundings, while in most all situations a rustic bridge is in good taste. A rustic bridge may be made very elaborate in its workmanship, or it may be exceedingly simple. Some examples of costly structures of this kind may be seen at Central Park. We present an engraving of a very simple one, which is not only pleasing in its appearance, but its construction is such as to render it substantial and permanent. The engraving shows the structure so plainly that no description is needed. It will be seen that it is self-supporting. In bridges of all kinds every care should be taken to make the abutments secure and the approaches laid in a substantial manner. The railing in the bridge here given is exceedingly plain. It can be made much more ornamental by the introduction of rustic panels, and some vines trained along it would add greatly to the rustic effect.

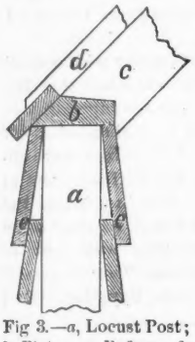
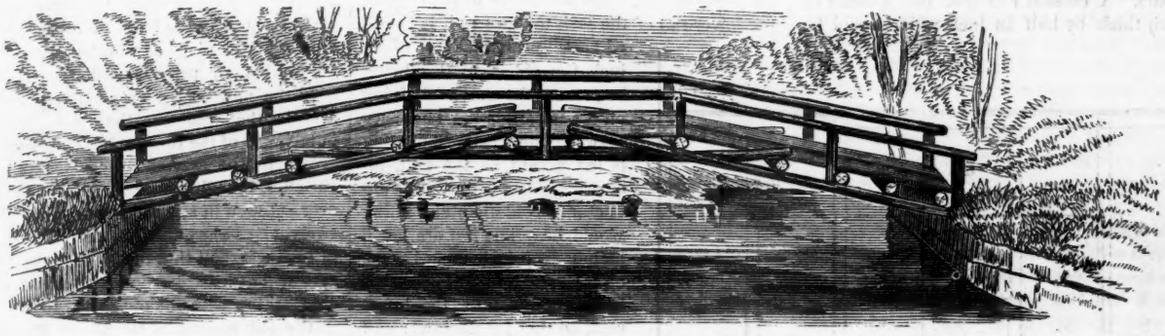


Fig 3.—*a*, Locust Post; *b*, Plate; *c*, Rafter; *d*, Sash; *e*, Weather-boarding.

The bridge we have figured was exhibited at the International Exposition of Horticulture, that was held at St. Petersburgh, Russia, in 1869, and attracted much attention; it was first engraved in L'Illustration Horticole.



RUSTIC BRIDGE, SHOWN AT THE INTERNATIONAL HORTICULTURAL EXHIBITION AT ST. PETERSBURG.

How to Build a Cheap Greenhouse.

BY JAMES HOGG.

The plans which we give are intended for a small greenhouse suitable for an ordinary country residence where no regular gardener is kept, and where the care of such an appendage to the house would devolve upon the family. Such a greenhouse can be built separate from the dwelling, and a shed attached to the northerly end for the purposes of a potting shed, the storage of tools, etc., but as drawn it is intended to be attached to the dwelling, and entered therefrom by means of a door from one of the rooms. This we consider preferable to having it detached, as it is accessible and enjoyable in all weathers, and if the entrance door from the house is glazed, it renders the room to which it adjoins remarkably cheerful and elegant. We prefer a double-pitched roof for such a greenhouse, to a lean-to, or single pitch, as it gets the benefit of the early morning and latest evening sun, an item of much importance in growing plants, and escapes the intenser heat of the noon-day sun (which in March and April is very great), as the end is perpendicular, the side of the roof being at an angle of forty-five degrees. Besides these benefits, plants grow better in such houses, because they have more light on every side, and consequently are not liable to become so drawn and one-sided as they are in a lean-to.

The proper exposure is southerly, that is, with the end facing any of the southerly points of the compass, from W.S.W. to S.E.; if any preference can be given in locating it, it should be given to the easterly points, as it enables it to receive more of the early sun during the shortest days of winter.

Our drawings, with the descriptions which we proceed to give, will enable any carpenter of ordinary intelligence to construct it. Many of them will no doubt object to the dimensions of the rafters, thickness of the sashes, etc., as it is a besetting fault with these men generally to make the rafters and other woodwork of such structures entirely too heavy. A plant structure cannot be made too light, provided due strength is maintained. It will be noticed that we do away entirely with all plates and sills, and also tenoned and mortised joints, as these are only so many places for the admission of water and subsequent decay, and also involve much outlay for material and labor.

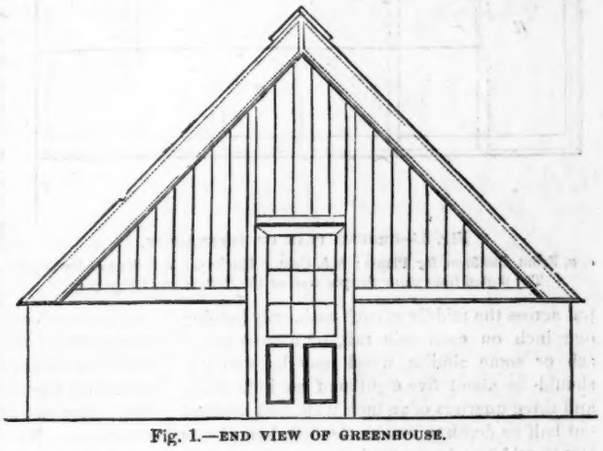


Fig. 1.—END VIEW OF GREENHOUSE.

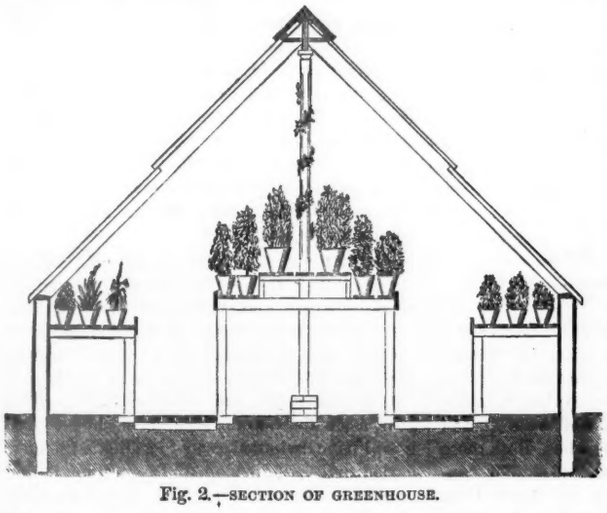


Fig. 2.—SECTION OF GREENHOUSE.

The sashes measure 6 feet 3 inches long, by 3 feet one inch wide, and one and a half inch thick, made of the best quality of white pine.

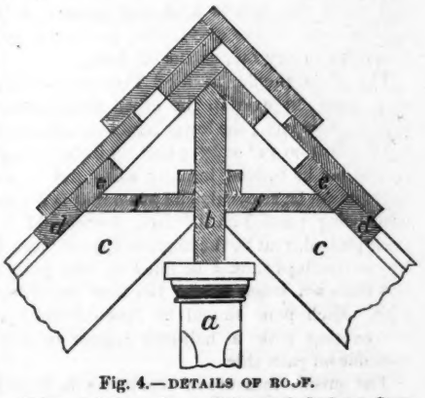


Fig. 4.—DETAILS OF ROOF.

a, Pillar; *b*, Ridge-pole; *c*, Rafters; *d*, Sash; *e*, Stop-piece; *f*, Ceiling.

The side rails should be 2¹|₂ inches wide, the top rail 3 inches, and the bottom rail 4 inches wide. The sash bars should be one inch and an eighth wide, rabbeted out five eighths of an inch deep, and ⁵|₁₆ of an inch wide, leaving the parting strip half an inch wide; this should over-

lap the bottom rail 2½ inches. The top rail should not be grooved out to receive the upper edge of the upper pane of glass, as in case of breakage it is almost impossible to clean it out; it should, therefore, be rabbeted to correspond with the sash-bars. A cross-bar of iron one quarter of an inch thick by half an inch wide, should be

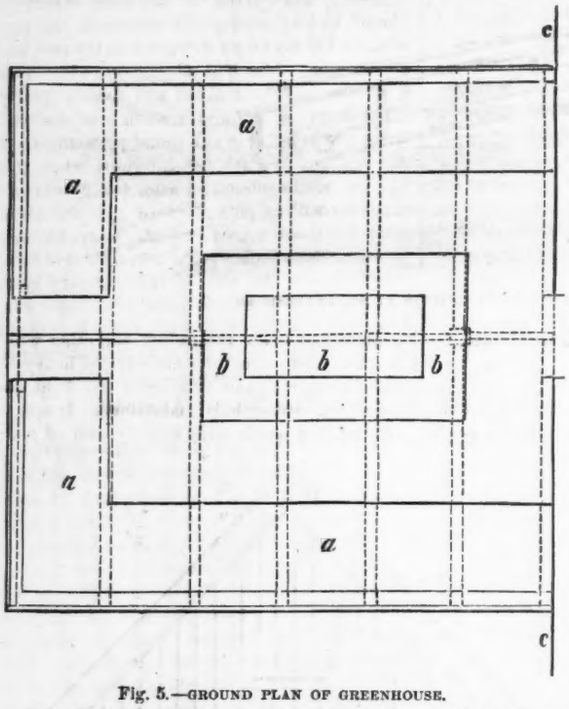


Fig. 5.—GROUND PLAN OF GREENHOUSE.
a, a, Front Platform for Plants; *b, b*, Center Platform; *c, c*, Side of Dwelling. The dotted lines show the position of the Rafters and Ridge-pole.

put across the middle of each sash, only lapping one inch on each side rail, or a cross-bar of ash or some similar wood may be used: it should be about five eighths of an inch thick and three quarters of an inch wide, and notched out half its depth to receive the sash bars; these last should not be notched out on any account, as it weakens the sash very materially. The screws used in putting on these cross-bars should be dipped in boiled linseed oil, to prevent them rusting in the sash bars, which would weaken them. The joints should all be put together with strong glue and not with white or red lead and oil; the glue makes a much stronger joint, and when the sash is kept well painted, will hold as long as the wood lasts, as it does not evaporate or dry out, as the oil does.

The glass should be 6×8 French seconds, each pane to overlap the other about three eighths of an inch; the lower panes should overlap the bottom rail at least half an inch. They should not be bedded in putty when put in, as they cannot be so evenly laid when that is done; after being puttied on the face, they should be back-puttied, that is, the angular spaces formed by the overlaps should be filled up with putty; this makes a much neater job than any other way. Each pane should be fastened down at the overlap with a half-inch copper or zinc sparable on each side.

The outside measure of the house is 18 feet 9 inches wide (from east to west), and 19 feet long, from north to south; over all, from the ground level to the top of the ridge-pole, is 14 feet. In constructing it, locust posts 7 or 8 feet long, squared on two sides to 4 inches thick, are set in the ground 3 feet 1 inch apart from center to center, leaving 4 feet above the ground level. These are weather-boarded inside and outside; on the top of these posts, after being sawed off level and square, a strip of white pine 2 inches thick and 6 inches wide is nailed down, which answers the purpose of a plate. It is beveled on the front to the angle of the rafters (45 degrees), and from where the upper edge of the lower rail of the sash touches it, it is beveled back to the thickness of an inch, the object of this being to prevent the water-drip lying on it and rotting it. The space between the weather-boarding is left vacant, as the still, inclosed air is a better non-conductor of cold than any filling would be. The rafters are 6 inches deep by 3 inches wide, an inch and a half of thickness being cut away for the lower sash, so that for the lower half of their length they are only 4½ inches deep. They may be made of uniform depth through their whole length, and a thickness strip planted on under the upper sash. The toe of the lower end of each rafter rests upon the plate strip, and is nailed through it to the head of the post immediately beneath it. A ridge-pole, 2 inches by 12 inches, is carried the whole length of the house; the end next the dwelling is supported by a bracket; two intermediate posts to carry it are placed one at each end of the center plant-stage, and the outer end is supported by a small strip carried up from the door-head. We sometimes see houses constructed without a ridge-pole, but the roof in such cases is always very weak and continually spreading, sometimes causing them to fall in. The upper end of the rafters is nailed to this ridge-pole. No parting strip is necessary between the sashes, nor is it necessary to have the rafter grooved out under each sash, as is sometimes done, to carry off the water. Such channels soon become choked up by dust and dirt, and are the favorite resort of all sorts of insects; they are, indeed, worse than useless.

A stop piece 1½ by 4 inches, is nailed along the rafters at the head of the upper sashes, and a similar strip is carried along the peak of the rafters; these two strips carry the weather-boarding of the cap; this weather-boarding should cover the upper rail of the sash about 2 inches. Inside, a narrow ceiling is carried across; this gives a neater appearance to the inside than if the peak above the sashes is left open.

The Egyptian Beet.

BY PETER HENDERSON.

I send you six specimens of early Beets; the larger is the "Egyptian," the other the "Short-top Round." You will observe that the Egyptian is more than double the size of the other, the average circumference being 17 inches, while that of the Short-top Round is only 8 inches. Both these varieties were sown under exactly similar conditions of soil and manuring, on April 15th. The Egyptian was first marketed on June 5th, and brought ten dollars per 100 bunches—about two cents each; the other was first sent in on June 17th, and sold for four dollars per 100 bunches, or less than one cent each. And even at this date, July 1st, when the market is flooded, the superior size of the Egyptian gives it a freer sale, at 25 per cent higher rates, than the old variety. From the smallness of the tops of the Egyptian, at least one fourth greater number can be grown on the same space than we have been in the habit of raising, so that it must take the place of all other varieties, either for market or private gardens. Last year I tried the new beet, very carelessly indeed, but even in that way saw that in earliness it was in advance of the other; but this season, when grown by the acre, side by side with our old varieties, the difference is greater than I have ever yet seen in any other vegetable. It is fully twelve days ahead of the other round varieties in earliness, and that means that the profit per acre will at least be doubled, when grown in competition with the old sorts. In other words, if the old Short-top Round, or Bassano, gave us a profit of three hundred dollars per acre, the Egyptian is certain to give six hundred dollars. This advantage, of course, will only be temporary, for just as soon as its cultivation becomes general, the profits will come down to the old level. Those growing the Egyptian for the next year or two, will most likely reap the benefit; for we all know, that no matter what merit any article may have, it takes years before all the people find it out.

[From our experiments this year with several kinds of early beets, we are confident that Mr. Henderson does not overstate the superiority of the Egyptian. With us it was far ahead of any of some half-dozen varieties. If other results are obtained, we shall be inclined to attribute them to false seed, as one of our dealers, in ordering the Egyptian from an English house, received some seed with the word that they were out of the Egyptian, but had sent some "just as good," and which they were selling for Egyptian.—Ed.]

Notes from the Pines.

GRAPES.—The moral influence of gardening in general has formed the theme of more than one essayist. The subject might be treated with special reference to grape culture, though I don't propose to do it any further than to say that a small vineyard affords an abundant field for the exercise of patience and many other virtues. Last year I planted a little vineyard of some fifty vines, in about half that number of varieties. The vines were partly one year old, others two and three, and included old and well-known as well as new and untested sorts. The vines all made a fair first year's growth; in fall, were cut back to near the ground, and left during the winter without any protection. Their behavior this year, now that they are well established, allows me to form a fair opinion as to which

VARIETIES are adapted to my soil. There are some which, like the Concord, succeed almost anywhere, and others, like the Iona, that succeed almost nowhere. What a magnificent fruit the Iona is when it will grow as it does in some localities in Ohio and elsewhere! Here a young vine will make a fair growth the first year, a smaller one the second, and by the third it will have dwindled away to a stick with a few curled and half-developed leaves upon it, and only fit to be cast out. The South Carolina Hybrids of Dr. Wylie, from which much was expected, may be considered as failures here. I have had them for three and five years, and do not care to bother with them any longer. The Rogers' grapes and the Martha seem to

flourish with great vigor, and if one wishes fruit without looking for high quality, it can be had from these and the Concord. The Eumelan makes an excellent growth and is a precocious bearer. Salem, though one of the Rogers set, does miserably, while the new varieties, Croton and Senasqua, are thus far the pets of my collection. But it is hardly worth while to go through the list. Suffice it to say that, as a general thing, the higher qualities of grapes will not do well on light soils.

MILDEW appeared remarkably early this year; so much sooner than usual, that it had made some headway before I noticed it. The fungus of the mildew is very freaky in its selection of subjects. Some of Rogers' grapes, such as Agawam, with leaves so large and leathery that they would seem able to defy any thing, are badly scorched, while the comparatively delicate foliage of the Croton—which is, moreover, largely foreign—is entirely untouched. Eumelan has mildewed badly this year. Mildew is easily kept in subjection if sulphur be used in time, and it is only through inattention that any serious damage need occur.

INSECTS.—Some one has said that horticulture is merely "a fight with weeds and insects." That man must have had a vineyard, for the fight must be kept up, with insects at least, from before the opening of the buds until the ripe clusters are gathered. The unopened buds are bored by a Flea-beetle; the leaves of the infant shoot, before it is an inch long, are the home of the larva of a Plume. At flowering come the Rose-bugs, which feed away upon the embryo clusters, and between whiles doing a little amateur "pinching" wherever they can find a shoot that you are particularly desirous should be prolonged. Along with the Rose-bugs come other beetles, from as small as they up to the Spotted Pelidnota, which is larger than a May-bug. Some of these beetles attack the leaf just where its ribs join the leaf-stalk—the very place of all where the most injury can be done—and in a few days your broad and vigorous leaf flaps in the wind like a tattered banner. Then the caterpillars, from the beautiful great fellows that travel singly, to the diminutive Procris, that passes in military order over the surface of the leaf like a well-drilled platoon—keeping "a light touch of the elbows," so close are they. Then the little gall-flies, seldom seen, save by their work, puncture the leaves, and the resulting excrescences make the vine look as if it had some unpleasant cutaneous disease, while other gall insects attack the young shoots, giving them a dissipated, gouty look. The pulp of the berry is infested by the larva of a curculio, and a troublesome brother of his makes its home in the very grape-seed itself. I have not mentioned the root-borers and stem-borers, as these have not troubled me. Indeed, a work upon the insects injurious to the grape-vine would make a handsome volume. The trouble with insects is so serious, and the desire of the grower to avoid it is so great, that quackery has a fine chance for the sale of its nostrums. I place no reliance upon any thing except actual slaughter. Hand-picking, and shaking off and killing, will do much to keep insects in check, while natural foes, in the shape of parasitic insects, sooner or later come to our aid.

TRAINING.—A visitor called while I was at work among my trellises, and asked what "system" I followed in training. "None at all, sir!" I can not imagine any thing more monotonous than to go over a vineyard and try to make each vine look like the next, and all like a picture in a book. When a doctor talks about treating the sick according to some "system," I set him down as a quack. A physician treats his patient according to his individual peculiarities and needs, and this is what a vine-dresser should do with his vines. His object should be to procure the greatest amount of fruit, with proper regard to the future well-being of the vines. If he understands enough about the vine to do this, he need not bother himself about anybody's system.

TENDRILS.—I have noticed in both my specimens of Rogers' 39, a strong tendency to produce leaves upon the tendrils. I have observed this now and then in other varieties, but never saw more than a single instance or so on a vine. I would like to know if this is a constant peculiarity of this variety?

EVERGREENS.—It is the general custom to plant evergreens later than we do deciduous trees, it being thought that they succeed better if moved just as the new growth is starting. My experience with planting at this time is not such as to induce me to commend it to others, and another year I shall try putting them out earlier. The success of the evergreens set out last fall in City Hall Park is strong evidence in favor of fall planting. A large number of trees, of unusual size, were put out, and we have not noticed a single failure. The autumn last year was very mild, and the trees had time to become well established before cold weather came on.

PRUNING EVERGREENS is best done after the season's growth is made, and when the new wood is hardening. A badly-shaped tree may be made comely by the proper use of the knife. By all means, preserve the lower branches, as the great beauty of an evergreen is in its being well furnished to the ground. If upper branches overhang the lower tiers, these last will die out for want of light and air. A little judicious pruning will prevent this.

PEAS.—Among a half-dozen of early varieties tried this spring, Carter's First Crop were decidedly the earliest—a full week ahead of the popular Dan O'Rourke. I think peas are the most unsatisfactory crop in the garden. In our climate they come forward too rapidly, and one gets but two pickings at most from the early sorts before they have become too hard for the table. What we need for the family garden is a pea that will mature gradually and prolong the season. Until we can get a variety of this kind, perhaps the best way is to plant a succession of dwarf sorts. The Little Gem is the best dwarf sort, but the trouble is that the seed, for some reason, is very uncertain. I have grown it for three years, and have never succeeded in getting an even stand.

SPIRÆA CALLOSA is one of the best of the late-blooming spiræas, and I find this and its white variety valuable for blooming at midsummer, when we have so few shrubs in bloom. I find that the white variety, like the White Wiegela, keeps in bloom much longer than the regular rose-colored sort.

HARDY CACTUSES.—I have now four species of the cactus family that I know to be hardy, and have a half-dozen or more from the mountains of Utah, on trial. If we can get a set of these grotesque plants that will endure our winters, it will allow us to introduce an interesting feature into our gardens. A small bed of these, and another of succulents, prove a great attraction to visitors, as their forms are so different from the plants commonly met with.

A New Tuberose.

Some years ago one of our most observing florists noticed among his tuberoses one that produced much larger flowers than the rest, and at the same time was of low growth. This particular bulb was saved and quietly propagated from, until quite a stock was accumulated, which he sold at a round price to two of our florists. We are not informed when this novelty will be offered for sale, but florists and amateurs will be glad to know that there is in store for them a tuberose which grows only about eighteen inches high, and produces flowers of double the size of the ordinary kind. This variety will be a favorite with those who force tuberoses for cut-flowers, as the long stems of the common kinds are always troublesome.

The Yellow Asphodel.

The Asphodel is mentioned by the early Greek and Latin poets as a plant which was placed in tombs, or planted around them, that its roots might furnish food for the dead. There is some doubt if the plant we now know as Asphodel, is the one alluded to by the ancient writers. At all events, the Asphodel (*Asphodelus luteus*) is one of the oldest of garden-plants, it having been introduced into England from the south of Europe nearly three hundred years ago. It is one of those old-fashioned things rarely to be met with, and we have long cherished a clump of it mainly on account of its antiquity. It is not without claims as an ornamental plant, and if it were brought out as a new discovery, it would have glowing descriptions in the catalogues. The Asphodel is perfectly hardy; early in spring it throws up from its fleshy roots a tuft of narrow leaves of a pale green, and later a flower-stalk clothed with similar leaves, and about three feet high. The flower-spike is some eight inches long, and as the flowers open gradually from below upwards, it remains for some time in bloom. The engraving on the next page is much reduced in size. The flowers are bright yellow, and are followed by a nearly globular seed-pod about the size of a cherry. The plant forms an abundant supply of offsets which allow of its ready multiplication. Having a rather stately appearance, and being perfectly able to take care of itself when once established, the Yellow Asphodel is a plant well adapted to the "wild garden." There is a double variety which we have not seen, and several other species are known in cultivation.

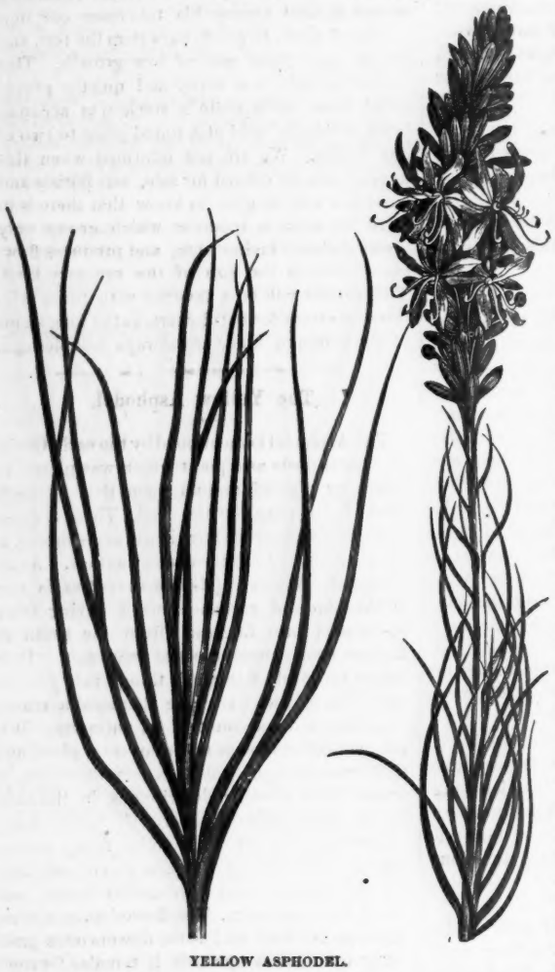
The Cabbage Maggot and Caterpillar.

BY PETER HENDERSON.

Quite a number of the readers of the *Agriculturist* have applied to me for a remedy to destroy the maggot that attacks the roots of cabbage and cauliflower, and also for the caterpillar that attacks the leaves. I regret to say I know of no certain remedy. Nothing is more difficult and unsatisfactory than the attempt to defeat the ravages of insects in the open field, and I have yet to know of any being entirely successful. In the long-cultivated gardens of New Jersey and Long Island we do not suffer much from the ravages of either of the above pests. The soil is so repeatedly turned over and disturbed that I presume the maggot is not

left long enough at rest to develop itself in sufficient numbers to produce any great injury; and the luxurious growth resulting from the continued and heavy manuring seems to be less inviting to the butterfly to deposit her eggs than the feebler growth of less fertile soils. Or it may be that the increase of English sparrows is helping us in both these cases, by destroying the fly that produces the maggot, or the small white butterfly that produces the caterpillar, or it may be that they feed on the caterpillar itself, as I know they do with the rose-slug. At all events, the farmer will gain by encouraging and caring for the sparrows. A few years ago the street trees of New York, Brooklyn, and Jersey City were festooned by myriads of the "measuring worm;" now, since the advent of the sparrows, they are scarcely ever seen. The sparrows will live in any section of the country if properly housed and fed in winter, and if such care was general, we would hear fewer complaints of insect ravages. True, they might exact wages for their services in requiring a little grain, but of the two evils, better submit to that done by the birds than to the insects.

I will relate an experiment to destroy the cabbage caterpillar, which occurred during this month, in my immediate neighborhood. One of my neighbors, no less a man than the noted John Reilly, found that the pest was attacking his cabbages; he came to me, and asked what I thought of his using slaked lime to dust over them. I told him I had but little faith in it. But he was resolved to try it, and put it on at the rate of four or five barrels to the acre, carefully dusting it on each plant. This was about the 1st of June; on the 17th he came to me in triumph, saying that the remedy had been effectual, and that there was hardly a caterpillar to be seen. But, unfortunately for the experiment, but fortunately for truth, Patrick Smith's cabbage patch, that had been also attacked when Reilly's was, but had received no lime, was also entirely clear of the caterpillar! The cure was traceable to another cause: we had had a deluging rain, that swept off the caterpillars and started the cabbages into luxuriant growth at the same time. Had the insect come in the legions it comes in some places, had there been no rain, and had the dry, hot weather continued, the lime dust would have failed.



YELLOW ASPHODEL.

Last summer I had with great care nursed along in my greenhouses for many weeks a collection of rare varieties of German Stock Gilly-flowers, a plant belonging to the same natural order (*Cruciferæ*) as the cabbage. Upwards of two thousand plants were set out in June, on rather poor soil; by the middle of July they had made splendid plants, one foot in diameter, and just as they were bursting into bloom we observed the little white butterfly moving amongst them, and knew what might be expected to follow. Lime dust, solutions of carbolic soap, whale-oil soap, and sundry other things were used, all to no effect, and by middle of August the plants were literally eaten up by the caterpillar. There is nothing more unpleasant than to tell any one suffering under a calamity that there is no tangible remedy; but it is infinitely better to do so than to delude them with a false one. I have been a worker of the soil since my boyhood, and every year's experience convinces me of the helplessness of remedies against insects or other blighting plagues that attack vegetation in the open field. It is true that the amateur gardener may save his dozen or two of cabbages or roses by daily picking off or destroying; but when it comes to broad acres, I much doubt if ever any remedy will be found to be practicable. We have one consolation in knowing that these pests are only periodical, and never continue so as to permanently destroy.

[The views of an experienced cultivator, like Mr. Henderson, are always worthy of consideration. While his attempts to destroy insects may not have proved successful, we think effort in that direction should not be discouraged.—ED.]

The Fraxinella.—(*Dictamnus Fraxinella.*)

A well-known horticulturist and a great lover of herbaceous plants once said to us that if he could have but one herbaceous plant it would be the Fraxinella. While we can not place so high an estimate as this upon it, we regard it as a valuable occupant of our border. It has been for a long time in cultivation, and in antiquity it is worthy to stand by the side of the Asphodel. In good soil the Fraxinella grows to the hight of two or three feet. The leaves are pinnate, and from their resemblance to those of the Ash (*Fraxinus*), the plant has received its common name. The flowers are produced in a terminal raceme, and have five petals, four of which are erect, while one is bent downward, giving the flower an irregular appearance. The stamens, which are long and conspicuous, are bent downwards and curved. The flowers are white, and there is a variety with the petals pale purple, marked with darker veins. All parts of the plant are highly aromatic; the stem, leaves, and the flower-stalks, particularly, are furnished with glands which secrete a volatile oil, having an odor something like lemons, or rather between that of oil of lemon and turpentine. This aroma is very agreeable to some persons, while to others it is offensive. At flowering time this secretion is produced in such abundance and is so freely diffused in the air around the plant, that it will burn with a flash when light is applied. We have never thought to try this experiment when our plants were in flower, but it is stated by so many reliable persons that we have no doubt of its truth. It is said to be most successful upon a mild, warm evening, when the air is perfectly still. The Fraxinella does not produce seed very abundantly, and the plants are several years in coming into flower. It is generally multiplied by division of the roots, which are very large and tough, and require care in dividing them in order to secure a bud to each piece of root. Formerly the roots of the Fraxinella were used in medicine, but like many other things of the kind, they have been dropped from the list of *Materia Medica.*

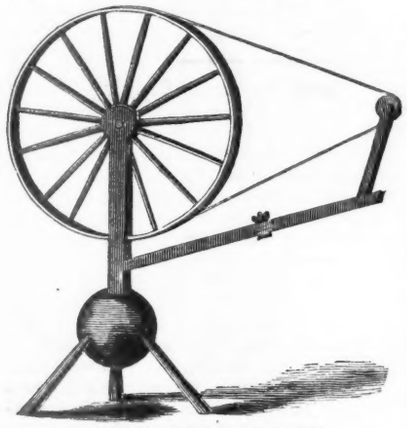
FRAXINELLA.—(*Dictamnus Fraxinella.*)

THE HOUSEHOLD.

☞ (*For other Household Items, see "Basket" pages.*)

An Improved Spinning-Wheel.

One of the effects of the late war was to revive the almost forgotten accomplishment of spinning. It is to be hoped that spinning may not become one of the "lost arts," though we trust it will not require an occasional war to prevent it from passing out of knowledge. W. H. Swearingen, West Plains, Mo., sends us a sketch of a frame for a spinning-wheel, invented by a neighbor of his.



AN IMPROVED SPINNING-WHEEL.

The improvement consists in the arrangement of the projecting arm, which is furnished with a joint that enables it to be folded when not in use; also, in the foundation for the post, which is a large ball, instead of a bench. The improvement seems to be a substantial one, providing for economy of space, which, in the majority of Western houses, is exceedingly limited.

Home Topics.

BY FAITH ROCHESTER.

PRACTICAL STUDIES FOR A YOUNG WOMAN AT SCHOOL.—Educational matters may surely have some place in the Household Department. I hope I shall not push them too far. But this letter from Annette K—— appeared to me as expressing one of the strongest wants of my own girlhood, and possibly of other young women. I do not feel competent to turn adviser, but I make public Annette's letter, and reply through the *Agriculturist*.

DEAR MADAM: I want to ask advice of some one, and my mother suggests that perhaps you will let me come to you. I am sixteen years old, but have never been to any school except our public school, and only during the winter sessions for a few years past, because mother has needed my help at home. Father has just promised me that I may go to B—— Academy next fall, and stay a year. I cannot tell you how glad I am, but I do not know what I had better study, and there is no one to tell me. There is a regular course of study at the Academy, but I probably could not stay long enough to complete it, and father is very anxious that I should study only *practical* things. He does not tell me what he means, and I suppose he really thinks I know enough now for a woman, if I am not going to be a teacher, and I suppose I am not. I have as good a knowledge of the common English branches as I can get at our public school, but I feel very ignorant. I want to *understand* things better, and I want to be as useful as I can wherever I go. I feel as though there is a great deal that I could learn at school if I had the chance, that it would make me happier and more useful to know. I cannot say what I shall do after I leave school. Mother is very glad to have me go, but I know she can hardly spare me, for there are seven children younger than I am.

If I am not intruding, please give me your idea of "*practical*" studies for a girl in my situation. With great respect, ANNETTE K——.

The desire to be a good and useful woman, whatever one's lot in life may be, is far nobler than the aim, primarily, to be "successful" as a merchant, milliner, doctor, or dressmaker. It is degrading to dwarf the man or woman to the limits of any calling or profession; for one's business vocation is an outside matter pertaining to the material interests that must be left behind at the close of our earthly life. The proper education of the immortal part, the mind, is an everlasting advantage. And if the mind be properly educated, it is also a daily advantage in all the labors of this life. Every study is really practical that strengthens the mind or helps to build up the character.

Annette wants "to understand things." I like that. She wants to be able to do her own thinking. She wants to get her mental faculties sharpened, and ready for use all the way through life. To accomplish this, it does not matter so much *what* she studies as *how* she studies. Many students fail to get any real *education* from their lessons at school, because the aim before them is simply success in the recitation class, or at the examination. They soon forget the lessons memorized simply to repeat, and as the memory was the only faculty particularly exercised, no especial benefit remains. If Annette will apply her own judgment to every lesson, bringing all her experience and observation to bear upon the facts she finds in her books, trying to understand the reason for every step she takes, she will get mental discipline rapidly.

But it is of considerable importance what studies one's time is devoted to. The natural sciences seem to me first in importance—none more so than physiology, especially for women who may be housekeepers or mothers. We ought to do our best to understand the mechanism of our bodies, and how they may be kept in good running order. Chemistry is a science of constant daily application in all our cooking and cleansing affairs. Some knowledge of it is necessary to a clear understanding of physiology, botany, or geology. Good teachers of this science are rarely found, but some study of it alone, without teacher or apparatus, is better than none. Botany, geology, astronomy, natural philosophy, United States history, and rhetoric ought all to come in, and Annette will find them all "practical" in making her a more intelligent woman, a better helper for her younger brothers and sisters, and a more reasonable companion for educated men and women. If she ever has her bread to earn, she will find that intelligence and culture pay in dollars and cents.

In mathematics, I should let the taste decide, beyond a good, practical knowledge of arithmetic. For those to whom such studies are positively distasteful, I do not think them very useful; but as discipline of the reasoning powers, and as delight to the mind willingly exercised with them, they can hardly be too highly praised.

Annette evidently loves to learn, and I am almost afraid of wronging her if I do not recommend some study of "the languages." But she cannot afford to let them crowd out the natural sciences. I am glad of all that I have learned in that line, at school, or since. Scarcely a day passes in which I am not conscious of some obligation to my little knowledge of Latin and Greek, in helping me to a better understanding of my own language, and it is very pleasant to have even a slight idea of the meaning of the French words and phrases with which our own literature is so profusely sprinkled. But here I only give my personal testimony without venturing to advise. I realize more and more how helpful and precious would be to me a thorough collegiate education, even in these busy days when I am confined almost entirely to the society of my little children. One year of schooling is not long, but a great deal may be done, and there is no reason why Annette should drop her studies at the end of that time.

MISTAKEN ECONOMY.—One mistake is, to make sheets short and narrow. They should never be less than two and a half yards in length, and three yards is hardly too long. Short sheets either pull up from the bottom of the bed, leaving the mattress and blankets to get soiled by the uncomfortable feet of tall persons, or they do not turn over at the top enough to preserve the bed-clothes from soiling by the breath and perspiration of sleepers.

It does not pay to make comfortables of old dresses worn so much as to be tender in the threads. Strong materials should be used for the covering of thick comfortables.

I have learned better than to put much work upon garments made over from other garments partially worn out.

CHILDREN'S SHOULDER-STRAPS, ETC.—I remember perfectly how uncomfortable were the narrow straps that slipped off from my sloping shoulders and let the weight of my skirts fall upon my arms. I often see little children tormented in like manner in these days. It is barbarous. A waist with the straps cut on, and so cut as to go over the shoulders securely, is much better. Such comfortable straps may interfere with very low-necked dresses, and little girls' shoulders *are* very pretty—but so are their whole bodies lovely! No style of dress is really beautiful that is decidedly uncomfortable or unhealthful. Let us mothers rejoice together that the fashions for children's dresses are more sensible than they used to be.

The garters that encircle the leg are uncomfortable, if close enough to keep the stockings smooth, and they are unhealthy to the degree that they interfere with the circulation of the blood by their tightness. It is a better way to have a strong elastic strap with a button at one end and a button-hole at the other. The button should connect with a firmly made button-hole in the stocking top (on the outside of the leg), and the button-hole at the other end may fasten over a strong button on the waist of the drawers. With close drawers buttoned to a good waist, no chemise is needed by a small child in very warm weather.

FROEBEL'S GIFTS FOR THE KINDERGARTEN.—1. Six rubber balls—the primary colors, red, blue, and yellow, and the secondary colors, purple, green, and orange.

2. A box containing a wooden sphere, cube, and cylinder, with wire loops for fastening strings.

3. A cube made up of eight small cubes.

4. A cube consisting of eight oblong parts.

5. A large cube made of small cubes, half-cubes, and quarter-cubes—an extension of the third gift.

6. A large cube made of oblong blocks, which are variously divided—an extension of the fourth gift.

7. Bright-colored square and triangular tablets for laying figures.

8. Slender staffs for laying figures.

9. Whole and half rings for laying figures.

10. Material for drawing—paper ruled in small checks.

11. Material for perforating—checked paper, with a needle fixed in a handle.

12. Material for embroidery—the paper of the eleventh gift already perforated, with colored silk in addition.

13. Paper for cutting into various beautiful forms, with blunt-pointed scissors.

14. Material for braiding or weaving—strips of paper of bright colors, with a braiding-needle.

15. Slats for interlacing.

16. The slat with many links.

17. Material for intertwining.

18. Material for paper-folding.

19. Material for peas-work.

20. Material for modeling—wax or clay, with a modeling knife.

It is impossible to describe all these gifts and the occupations to be conducted with them, so that one can get a clear idea, without many illustrations. The first and second gifts belong to the nursery even more than to the kindergarten. The blocks are for building purposes, and you would be surprised to see how many forms of life or use can be made from them. Weibe's Guide gives forty models that can be made with the eight cubes of the third gift alone, and a bright child will invent others. All these designs are made with exactness on a table ruled in squares of an inch, and most chil-

dren soon learn the value and beauty of precision in their work.

It is the same with the tablets and staffs and rings. These flat designs, following the solid forms, lead the way to drawing, which, in the kindergarten, is very elementary, but excellent training for young eyes and little fingers. The training of the kindergarten meets the common wants of children, or is adapted to the harmonious development of *all* children.

At the same time it affords an opportunity for genius of any kind to show itself and get the first steps of training. Besides the exercises with the gifts mentioned above, there are class exercises and games set to music, and it was the design of Froebel that each child should have a little garden bed to cultivate, for the sake of its religious education among other things—more agreeable to some children than the catechism! It is claimed that kindergarten training has the most happy effect upon a child's disposition. I am sure it must be so.

A mother who is relieved from the cares of the kitchen and of fashion, may be able to give her children a good deal of the kindergarten culture at home, but where there are no two pupils of the same age, there will probably be some friction, and *no untrained teacher* can *half* do justice to the work. One child alone does not make a "garten," but it needs culture nevertheless.

Canning, Pickling, and Using Fruit.

BY ESTELLE EDGERTON.

PICKLED PLUMS.—Last summer plums were very plentiful in our neighborhood, and of course a large quantity were bottled and pickled. A lady from Geneva, N. Y., gave me a recipe for pickling blue plums, which she thought a good one. I tried it, and we all pronounced it excellent. To 7 pounds of plums allow 3 pounds of brown sugar, and a quart of good vinegar. Boil the sugar and vinegar together with an ounce of cloves and nearly as much cinnamon, and pour it boiling hot over the fruit, which, of course, has been picked over and all stems and partly decayed fruit removed. Cover the jar and let it stand 24 hours, or over night. Pour off the juice, boil up again, and pour it boiling hot over them. Do this again on the next day, and close for winter use. They ought to keep perfectly, but if they do not, the juice should be drained from them, boiled up again, and poured hot over the plums.

PLUMS, TO BOTTLE.—Weigh the fruit, and allow a half pound of sugar to a pound of plums; less than this quantity for very ripe and sweet Green Gage varieties. Put the sugar in the kettle and moisten it well with water. Let it come to a sirup, boiling and skimming if brown sugar (which is the kind I use); now add the right proportion of plums. Let them come to a boil, and then bottle. I like them whole, with the juice clear, and to insure this, I let them stand on the back of the stove until they are heated through, and the juice running before I bring them to a boil. I think it is a shame to make a strong jam of good, handsome blue plums; whole, they are of a delightful purple color—the *jam* is brown and ugly. I have seen a method in your paper where the plums are put in jars, covered closely, and allowed to remain over night in a warm oven. It is a very good way.

PLUM PIE.—An English recipe. Take a deep, earthen dish. Invert a cup in the center. Place plums all around the cup until the dish is heaping full, adding what sugar you think best. Make a rather plain pastry. Moisten the edge of the dish with a little water. Cut a strip of pastry half an inch wide, and as thin or thick as you like. Place all around the rim. Moisten this pastry with your finger dipped in water, or, better, with white of egg. Now cover the whole with the remaining pastry, trim around, and bake. This pie is delicious, eaten cold, with white sugar and cream. In helping guests, do not forget to give a generous portion of the juice.

PEACHES.—I used to consider the work half done when the peaches were peeled, but that is the simplest part of the process now. I believe that under proper management a bushel of peaches might be skinned in five minutes or less, and I have no doubt that it *is* done in well-regulated canning factories. A few years since you gave a recipe for skinning peaches with ashes and water. It was excellent, but I have discovered that it is not necessary to have the ashes themselves (as said the recipe) in the kettle—a strong lye is all that is required. Sal-soda and water will do the business, but I do not know the exact proportion, or if it needs to be exact. Make a strong lye of fresh wood ashes, pour off the clear lye into a kettle, bring to a boil. Put in as many peaches as desired, stir them round gently, and when you see any bare places take them out and throw them into a pail of cold water; remove the skin, and pass them into another vessel of cold water, and from thence to the kettle on the stove. They should not remain in the boiling lye more than twelve or fifteen seconds. I think white peaches are the nicest kinds to bottle; they are more delicate in color and flavor, but of course I always put up a large quantity of yellow varieties. A quarter of a pound of good white sugar is sufficient to a pound of the fruit; you may use less if you like, or even more; but the sugar penetrates the fruit while in the bottle, and very much improves the flavor. A few of the pits improves the flavor; where bottle room is not an object, the stones may be left in. It will take ten ordinary-sized peaches to fill a quart bottle, if whole. The same bottle would have held fourteen if halved and the stones removed. You will need to use a little water. The sugar and water should be brought to a sirup, when the peaches may be put in, and as soon as they boil well they should be bottled and sealed immediately.

PEACH PIE.—I think a peach pie is much better made without an under crust, the peaches whole. Eaten cold, with sugar and cream, it is delicious.

PEACHES FOR TEA are much nicer and look better when cut up just before going to table.

PEACH PICKLE.—Take any quantity of fine peaches just before they ripen; stick into each one four or five cloves; make a sirup of three pints of vinegar and three pounds of brown sugar to every seven pounds of peaches; add cinnamon if you like, I like them better without. Bring the sirup to a boil, and pour hot over them; repeat the process for three days or until they are shrunk on the pit. After the last scald, they should be well covered and put away in a very cool cellar until cold weather sets in. They will be ready to use, however, in a few days after they are pickled. Pears pickled in the same way as the blue plums, are excellent, to my thinking.

LAYING DOWN CUCUMBERS.—The best way to lay down cucumbers is to sprinkle salt over and let them form their own brine. A board and stone should be laid over them, in order to keep them under the brine. If in three days there is not enough brine formed to cover the cucumbers, there is not salt enough on them and more should be added. They should never be allowed to protrude above the brine, as a white mold will form and they will soon soften. In cutting the cucumbers from the vine, leave a small stem on the pickles. They keep better and appear better on the table.

Eating Green Corn.

Last autumn persons who wished to observe "the proprieties," inquired of us whether it was according to good usage to gnaw the corn from the cob, or if it should be cut into the plate. Generally, though not always, matters of table etiquette are founded in common sense. A bird can only be properly enjoyed by picking it, hence good usage sanctions the use of the fingers in removing the flesh from the bones of a bird, while one who should take the bone of a beefsteak, or a mutton-chop, in his fingers, would be looked upon as ill-bred. The only way to get the full satisfaction out of green corn is to gnaw it from the cob, and though the operation, especially to a foreigner who knows not corn, is not an elegant one to witness, it is performed at the best-ordered tables. So generally is it conceded that corn should be eaten from the cob, that silversmiths now make silver green-corn handles; these are thrust into the large end of the cob, and allow it to be held without soiling the fingers. It is rather an awkward matter to cut the corn from the ear at table, especially if the knives are not sharp. If it is to be eaten in this way, it should be prepared before it is sent to the table. The operation of eating from the cob is much facilitated by drawing a sharp knife lengthwise of each row, in such a manner that the hull of each kernel will be split. When this is done, the digestible, nutritious contents of the kernels will slip out, and the often tough hull be left upon the cob. Those whose teeth are sensitive or defective will find this a great help.

Questions about Canning.

Canning or bottling fruit is an operation of so much importance in the household, that, although we have an article upon the subject from a correspondent, we answer here a letter which will allow us to make some explanations that may be of interest to many. H. T. Sweeney, Springfield (no State), writes as follows:

"In the June number of the *Agriculturist* is an article on the canning of berries, etc. The writer says: 'Put the fruit in hot, and seal at once.' I have been informed that canning-houses let the steam and hot air escape before sealing. (1) Will you inform me if there is any work giving the particulars concerning the canning of meats, fruits, and vegetables, as practiced by canning establishments? (2) Will tomatoes put up in glass jars keep as well as in tin cans? My impression is that the action of light through the glass impairs the tomatoes." (3)

Reply. (1) This question arises from confounding the two terms canning and bottling. We have used these terms as meaning the same thing, but, properly, canning should be applied only to the process of putting up fruit in tin cans. Our people first became acquainted with fruit preserved at the factories in cans, and afterwards, when in domestic operations glass vessels were used for fruits, they were still called canned fruits, though put up in bottles. When a word gets into common use, it is very difficult to change it, though its application, as in this case, may not be precisely accurate. In factories the fruit is put into the cans, which have the covers sealed on; these are then heated in a vat of water, or by steam, and the fruit cooked in the cans. A small hole is then punched in the tin—not so much to let out the steam as to let out the air; this hole is then closed by a drop of solder. When bottles are used, the case is entirely different; the fruit is first cooked, and put hot into the bottles with its sirup. If the fruit is filled in carefully, and the sirup fills all the spaces among the fruit, and if the bottle is well filled, there is no chance for air and no steam to be let off.

(2) We know of no treatise on the subject, except an old French one, now useless. Factory experience would be of but little use in the family, and if one wishes to go into canning as a business, he could easily obtain a competent foreman by advertising. We know of no information upon preserving fruits so full as is contained in the back volumes of the *Agriculturist*.

(3) We have never seen tomatoes put up in glass that kept as well as those in tin. We attribute this not to the action of light, for the bottles can be kept in a dark place, but to the fact that the fermenting principle is destroyed by the long boiling, with the exclusion of air, that is possible in tin vessels.

Heading off Mosquitoes.—"J. A. W." writes: Not having the convenience of a cistern, I catch rainwater in barrels. To avoid breeding my own mosquitoes, I elevate my barrels so I can draw the water from the bottom, then pour upon the surface of the water a little *thin oil*, which soon is diffused over the water; and if it has "wigglers"—undeveloped mosquitoes—in it, they will die, and no more will accumulate while the oil is on the water.

BOYS & GIRLS' COLUMNS.

Insects as Musicians.

We frequently hear people speak of the singing of crickets and grasshoppers. These insects are very noisy, it is true, but they are not vocalists; they are instrumental performers. Each one is furnished with a sort of violin upon which it plays without any instruction. In the crickets, a portion or rib of each wing is furnished with teeth, which serves as the bow, and a hard, smooth rib answers for the strings of the fiddle. The insect rubs one wing over the other, and then reverses the movement, and by the scraping of these two parts together the sound is produced. The grasshoppers manage somewhat differently. The long hind legs are the fiddle-bows. The inner surface of the broad upper part of these legs is furnished with over eighty small lancet-shaped elastic teeth, and these the insect scrapes against the sharp ribs upon the wing cover—or outer wing—first one and then the other. The loudest instrumental performer among our insects is the Katydid. In a still night the constantly repeated "katy-did-she-did" may be heard for the distance of a quarter of a mile. The katydid produces its note by means of its wings, which are peculiarly fitted for the purpose. In each wing-cover there is a little tambourine formed of a thin transparent membrane or skin, stretched in a strong, half-oval frame. As the wing-covers are opened and shut these little tambourines rub against one another, and produce the sounds which give the insect its name. These notes are supposed to be useful to the insects in enabling them to find their mates. From the constancy with which some of them keep up the sounds, we think that they must be pleased with their own music. Boys just learning to whistle make a noise that, whatever it may be to others, seems very pleasing to themselves, and they keep it up for their own gratification. It may be that insects do the same.

Farmer or Doctor—Which?

Sammie B. Wells, Jr., writes us the following: "I take the *American Agriculturist*, and as I see that you advise boys, please give me a little advice. Had I better be a doctor or a farmer? My father wishes me to be a farmer, and my oldest brother, who is a doctor, wishes me to be a doctor. Which is the best business? I think I prefer farming. Please answer me in the next *Agriculturist*."——Answer you—why, you have answered yourself. Your own preferences are in accordance with your father's wishes, and what can be better? The only point to be answered is—which is the best business, that of the doctor or farmer? There is no doubt that a successful physician may accumulate money more rapidly than most farmers are able to, but his is a hard life, and, as far as comfort goes, that of the farmer is much to be preferred. But a small share of those who are educated as physicians are successful. Their reward, when it comes, if it come at all, is only after a long struggle. Then no one should become a physician unless he feels a strong inclination towards the profession. It should not be taken up as a mere business. With all respect to the "oldest brother," we say, if your inclinations are to be a farmer, follow them. It is a calling in which you can invest all the talent you may possess, and be at least sure of a good living, without the inconveniences that attend the physician's life. Of course, these remarks are made on general principles, and without knowing any thing of the persons. There are too many poor doctors, and not near enough good farmers, and we always look upon it as a fortunate thing when a farmer's son himself desires to be a farmer.

Aunt Sue's Puzzle-Box.

PUZZLE.

1.

X

O	S	S	U
T	B	P	E
L	A	E	N
U	Z	Z	U

CLINTON FERGUSON.

RIDDLE.

2. All alone upon the sea,
Seldom any visit me,
Yet thousands see me every year,
And many an anxious heart I cheer. HARRIS.

ADOLPH M. NAGEL sends the following

OPPOSITES,

which promise considerable amusement in their solution. For those not familiar with this style of puzzle, let me give a hint or two. "N take," might make a good opposite for "Ocean" (O shun): "Gentile cup them"—"Judicious" (Jew dish us): and so on. Now let us see what you will make out of the following:

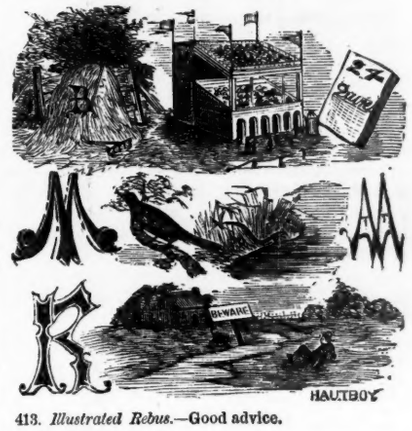
3. Man's boot.
4. English nose
5. Out unseen.
6. Dollar more.
7. Heavy barn.
8. Savage woman.
9. Hit given.
10. Coward out.

TRANSPOSITIONS.

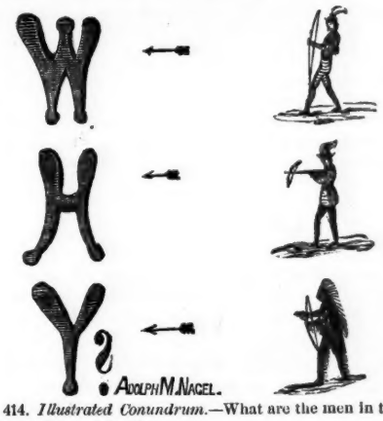
(Fill the following blanks with the italicized words transposed.)

11. In some —— the girls *scream on.*
12. The wagon in which usually *he drives*, is ——
13. Would it be far-fetched to call —— "*coal ovens*"?
14. *Annie toiled* to give a true ——
15. She was —— in some *tender ties.*
16. They —— between *tart and eel.*
17. *She slings Gus* sky-high because of his ——
18. That music from *her cats? Lor!* that is ——

412. *Illustrated Rebus.*—Alas! too true.



413. *Illustrated Rebus.*—Good advice.



414. *Illustrated Conundrum.*—What are the men in the above picture doing?

DIAMOND PUZZLE.

19. 1. A close consonant. 2. A plural verb. 3. Part of the human frame. 4. To turn from the truth. 5. An emigrant. 6. Often a pitiable result. 7. A passage. 8. A mineral. 9. A liquid consonant. The perpendicular letters are the same as the 5th item. H. H. CLARK.

NUMERICAL ENIGMA.

20. I am composed of 64 letters:
My 25, 2, 4, 12, 23, 21, 51, 59, 47, is a bad quality to have.
My 49, 42, 13, 37, 27, 45, 24, 52, 58, 20, 62, 61, 7, 56, 2, 38, is a singer.
My 1, 41, 19, 8, 40, 53, 23, is part of the robin.
My 29, 63, 48, 21, 34, 61, was a musical composer.
My 40, 60, 17, 64, 5, 46, is a joyous interjection.
My 59, 61, 14, 2, 57, 44, 22, 3, 30, was a queen.
My 50, 41, 32, 11, 29, 43, 17, is a plant.
My 28, 19, 49, 26, is much used by upholsterers.
My 39, 10, 6, is a Scottish river.
My 36, 33, 18, is described in Genesis.
My 35, 54, 64, 15, 55, wrote an opera.
My 14, 16, 13, 31, 9, is a planet.
My whole is a quotation from a "poem of the period."
AUNT MOLL

PI.

21. Serpence fo dimn si cenrayses ta lal items.

CROSS-WORD ENIGMA.

22. My first is in Christmas but not in May,
My next is in sunshine but not in day,
My third is in ocean but not in wave,
My fourth is in tombstone but not in grave,
My fifth is in "coming" but not in "went,"
My sixth is in Easter but not in Lent.
My whole is a Trojan; tell his name,
For many a schoolboy knows his fame.
R. T. ISVESTES.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

ANAGRAMS.

1. Ribounds.
2. Domesticated.
3. Foreheads.
4. Diagnosis.
5. Aboriginal.
6. Doctrines.
7. Appliances.
8. Interwoven.
9. Foregoing.
10. Hereafter.

WORDS ENIGMATICALLY EXPRESSED.

11. Witchcraft. 12. Hotel. 13. Father. 14. Seesaw. 15. Simpleton.

MULTUM IN PARVO.

16. Theirs: I, it, its, he, her, hers, his, their.

DIAMOND CROSS PUZZLE. New York.

17.
N
EEL
HEWER
NEWYORK
BROWN
IRE
K

18. Dandelion.

19. Hope, fear, peace, and strife,
Make up this tangled web of life.

20. Take away the eight matches corresponding with the dotted lines.

21. 281)90257(321. (*Key.* Peg, Tom and I.)

22. Wainscot. 23. Esophagus. 24. Grandmother.

410. He sleeps well who has naught to gain or lose on the morrow.

411. A rainbow at night is the sailor's delight.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

ARTHUR W. K. Did you hope your answers would reach me "before the 1st of April," when you did not post them until the 31st of March?

WILLIE S. ON. Yes, you were just half an hour "too late." I would rather be an hour too soon than a minute too late, any time.

S. L. D. The "inclosed" was forwarded "to the Publisher" as requested.

STAR AND CRESCENT. You *deserved* "honorable mention" if you didn't get it.

E. A. SWAIN. I wish all my nieces and nephews could see the arrangement of your answers: it was perfect.

ADDIE L. P. I am very glad that "we" enjoy the puzzles, etc.

J. H. BIRD. Are you going so far away that the *Agriculturist* cannot reach you? Good by. May God be with you upon the deep!

JENNIE FOSTER. You will soon "understand," if you examine the answers.

ROBBIE. When you make a labyrinth you should have an entrance into every path.

NEALIE C. I am glad you made a beginning if you "never tried before."

THOS. C. COOPER (*Santa Cruz, Cal.*) is much interested in natural history, and would like a correspondent of similar tastes, with a view to mutual improvement.

HATTIE E. PECK.—I have put that little geranium leaf with my treasures.

LILLIE STREEPER. Did you receive your package safely? I directed it to "Newtown Square, Delaware Co., Pa.

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TEMPTING GOOD NATURE.—*Drawn and Engraved for the American Agriculturist.*

Boys and dogs are much alike in some respects. There are some boys whom you know you will like without ever having spoken to them, or knowing any thing about them. When a new boy comes into the neighborhood, he very soon gets his measure taken by the other boys. You at once say, "That is a good fellow; I am glad he has come;" or, "I don't like the looks of that chap, and I shouldn't be surprised if he would turn out a sneak." These boys carry their characters in their faces and whole general bearing. We think we could pick out a brave, generous, and trusty boy from his photograph. Among the dumb animals, we think that dogs show their characters in their looks more distinctly than any others, and it is about as easy to distinguish between a noble and a mean dog, as it is between a noble and a mean boy. Some dogs, by their look and manner, invite confidence, and others you know at sight to be suspicious and untrustworthy. How admirably the artist has shown dog character in the above picture! With what a quiet dignity the larger dog rests, and how cowardly the one looks that is stealing up to get the coveted bone! He looks as if he were conscious of being engaged in doing something mean and sneaking, and we feel that he deserves the pat of the heavy paw that he will get when he has imposed too far upon good nature. It may be, after all, that dogs have their dispositions much influenced by those of their owners. It would not be at all surprising that the dog belonging to a passionate boy, who beat him without cause, and was unreasonable in all his demands, should be quite different from an animal brought up by a gentle and affectionate boy. We can make dogs, by careful training, learn a great many tricks. It may be that we teach them unconsciously, and that our example is not without its effect upon even our brute companions.

Boys' and Girls' Letters.

It is an excellent thing for boys and girls to begin to write letters while they are quite young. The mere writing of the words and sentences is easily learned; but there are several other things about letter-writing than this, and are quite as important to be learned early in life. There are three or four letters from young folks now before us, and in many respects they are much like the letters of older people. Perhaps some hints may be gathered from these letters that will be of use to those who are just practicing writing. The first letter that we take up has the town, but no State. This is a very common mistake in our business letters from grown-up people, and often makes much trouble. Next, here is a boy who asks twelve questions, one right after another, making all sorts of inquiries about the prices of various things in New York. To answer this we should be obliged to employ a person for perhaps a whole day to go around and find out about the things, and then it would probably be of no other use than to gratify a boy's curiosity. When older people write such letters, we do not answer them. The boy will be served the same. Here is a boy who lives in Columbus, Ohio, who sends a letter without any name signed to it. Must we infer that the poor fellow has no name? Never write any thing that you are ashamed to sign. It is one of the rudest things any one, old or young, can do, to send another a letter without a name. Anonymous (nameless) letters are so much used by cowardly people as a means of saying that to a person which they would not dare say to his face, that the custom is associated with too much that is disreputable to allow any boy who expects to do only the fair thing to practice it. Of course, well-meaning people sometimes thoughtlessly do it; but they would not if they considered how impolite it is. Begin your letter-writing with the determination never to write any thing that you will regret to see again, and sign your name openly and above board. One boy wishes us to write out "what every thing costs on a farm of 100 acres." If he will tell us how many gray squirrels there are in his State, and what would be the length of their tails placed end to end, we will think of his question. "Answer this right off" appears at the bottom of one of these letters. That is not a polite way of making a useless request, as there was nothing in the letter requiring an answer.

You must not judge from this that we are not glad to get letters from boys and girls, for we sometimes receive much pleasure from them. We only wish to point out some things to be avoided. 1st. Do not write unless you have something to tell or something to ask. 2d. We like to have you tell us of what you *see* that is curious, strange, or interesting. 3d. We like to have you ask questions that can not be readily answered in your own family, or by your neighbors. Don't ask questions merely for the sake of asking. We are always glad if we can instruct, but have no time to give to finding out prices, and such things. 4th. When you have determined to write, and decided what you will write, put down Town (or Post-office), County, and State, before you write a word of the letter proper. 5th. Say what you have to say as plainly as you can, and when you have done so—stop! Do not say "I must stop now, for it is getting late," or make any other excuse for stopping, but stop simply because you have got through. 6th, and most important, *Sign your name.* 7th. If your letter is one requiring an answer by mail, it is always polite to send a stamp, whether to a private person or an editor, to pay for the return letter.

THE FIRST PREMIUM for the best TIN-LINED LEAD PIPE was awarded by the American Institute Fair to the COLWELL'S SHAW & WILLARD M'F'G Co., No. 213 Centre street, New York, Manufacturers of TIN-LINED LEAD PIPE, BLOCK-TIN PIPE, LEAD PIPE, SHEET LEAD, SOLDER, etc. Orders solicited. TIN-LINED LEAD PIPE is fifteen cents a pound, for all sizes. Warranted to be stronger than Lead Pipe of the same weight and size, and free from Lead or Zinc Poison or Iron Rust. Circular and sample of Pipe sent by mail, free. Address as above.

The Universal Wringer has been in use in our family for years, giving entire satisfaction. We speak whereof we know when we say it is one of the best labor-saving machines ever invented, having several points of superiority over any Wringer we have examined.—*New York Liberal Christian, April 2d*, 1870.

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These are protected by the **PATENT STOP,** or screw, above the cogs, which prevents them from entirely separating, so the

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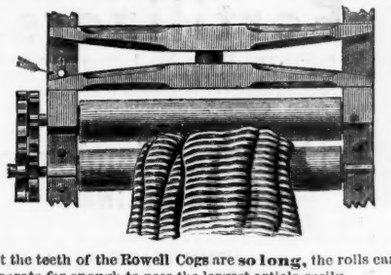

yet the teeth of the Rowell Cogs are **so long,** the rolls can separate far enough to pass the largest article easily.

Always try a Wringer before Purchasing,

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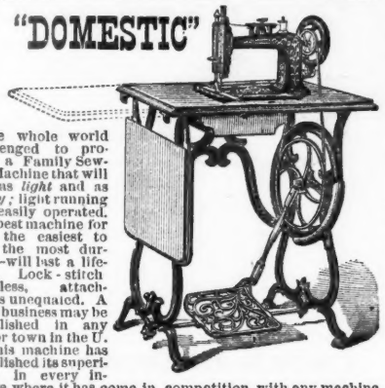

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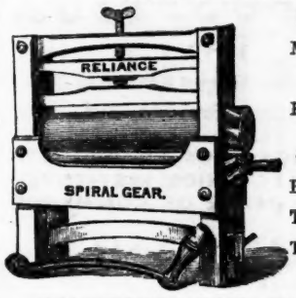

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Easiest Working;
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WITH

PORCELAIN-LINED CAP.

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EASE with which it can be OPENED, and without risk of breaking either *Jar* or *Cover*.

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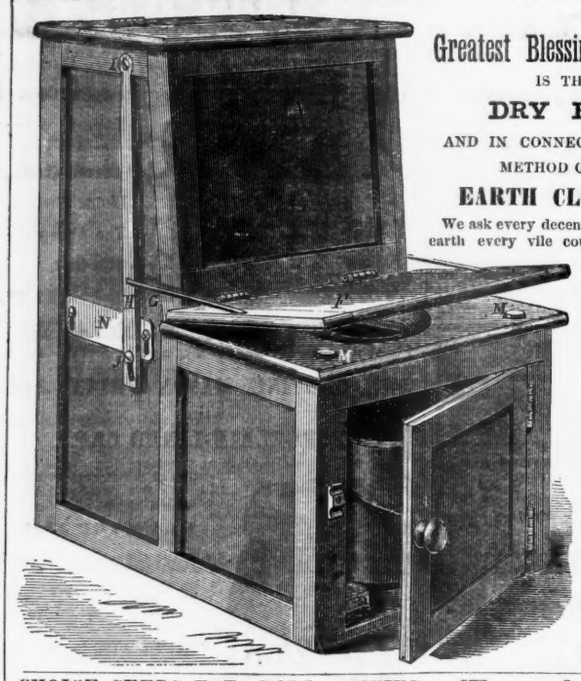

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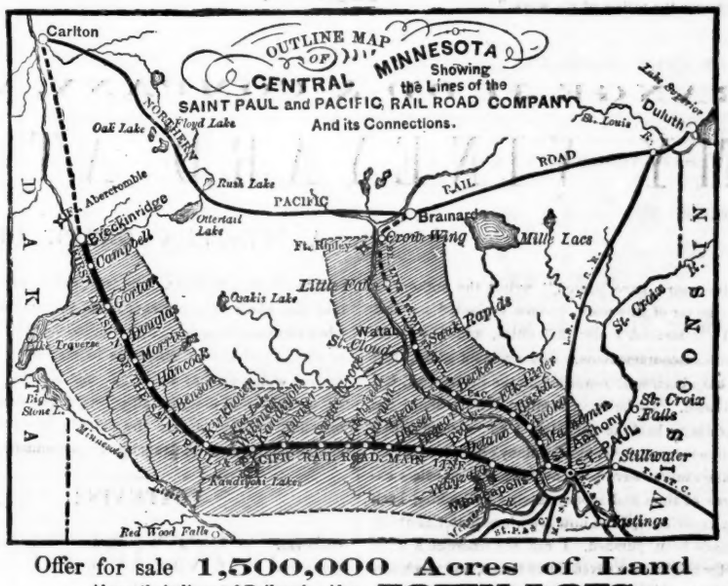

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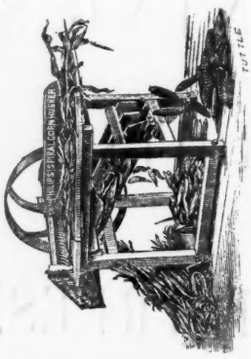

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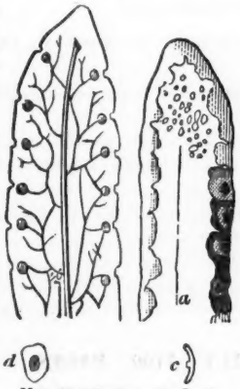

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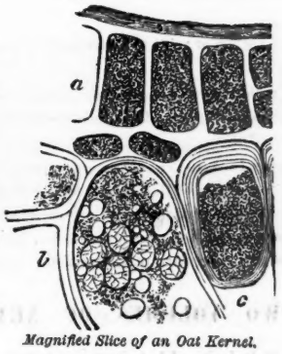

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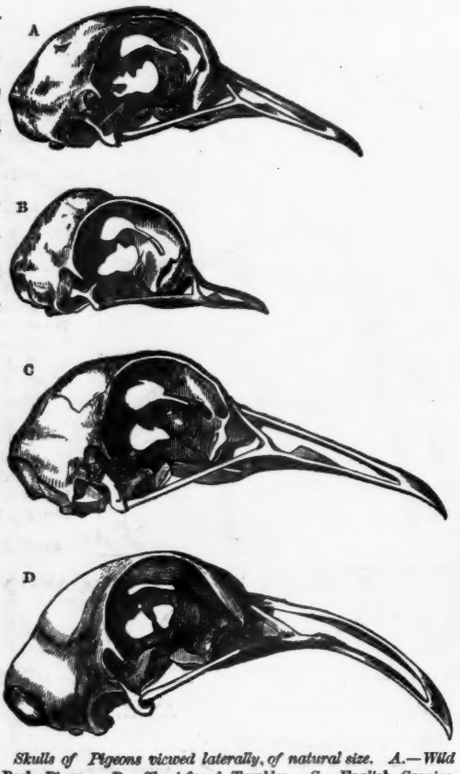

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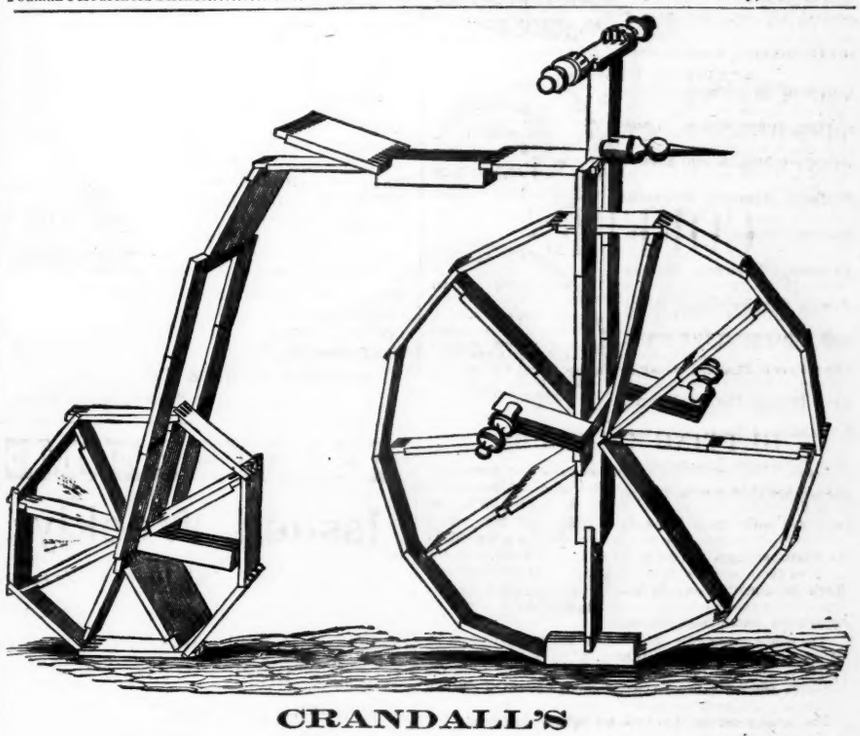

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